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THE BUILDER

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A Further Note on the Drawings Question.

IN discussing in a previous issue the question of an architect's right in his drawings, we have already referred in passing to the different manner in which this right is regarded by the law in other countries. It may be useful to say a word or two more on this part of the subject. It is easy to say, of course, that English law has nothing to do with the law of any other nation. But it is surely something to the purpose to show that what the English law regards as an unwarrantable and unreasonable claim on the part of architects is regarded by the law of France and Germany as perfectly reasonable and worthy of legislative support. In regard to France especially the argument is of the more force because it is unquestionable that architecture is much better understood and much more esteemed in that country than in our own.

We have made special enquiries from two or three sources in regard to the practice in France and Germany. A correspondent, an architect practising in Paris, assures us that the judgments which have been delivered in England on this head would be regarded in France as absurd. "The law here gives the architect the absolute right to keep his drawings, and the client has not the slightest right to them, unless of course some special agreement were come to between architect and client." It is customary, however, to give the client tracings or copies of the main drawings *i.e.* the general elevations and plans, if he asks for them; but it is a custom of courtesy only, and no obligation in law. If the client wishes to have copies of detail drawings, the architect may furnish them or not as he pleases; but if he does, he has a right to make a special charge for them, over and above his commission for carrying out the building.

The German practice, we are informed by a German architect, is that architects keep all their original drawings, specifications, papers and correspondence relating to a building. They are however bound to provide a client with one copy (tracing, lithograph, or process copy) of the drawings (we imagine this means the general drawings) if called upon to do so, without extra charge. But to this there is an important counter-obligation. The client is not allowed in any way to use these drawings for any further building operations, the arrangement being that the fee for the architect's services is for the specific work carried out; and if his drawings or copies of drawings are re-used by the client, the architect is entitled to a fresh set of fees for the design as distinct from supervision. This seems rather clumsy

legislation, for the question naturally arises—*quis custodiet custodes?* If the client is not honourably disposed, who is to keep watch on him and find out whether he makes any further and illegal use of the drawings? But at all events it will be seen how different this is from the attitude of the English law, which simply, as we are now to find to our cost, orders the architect to hand over all his drawings to the client without restriction or condition of any kind.

Our correspondent in Paris makes the very sensible suggestion that it would be well for the Institute to address the "Société Centrale des Architectes Français" on the subject, and ask them for a formal and official statement of the law and custom in France in regard to drawings, with details of any cases which have been decided. The Société would, we have no doubt, be very glad to furnish this information, and the possession of it ought certainly to strengthen the hands of the Institute in seeking a reform in the English law on this subject.

For we consider that the Institute of Architects is bound to take action in the matter, and will not be able to shake off its responsibility to do so without injuring very materially its position and prestige with the profession. We know that already one important provincial society has sent to the Institute a formal demand that it should take the question up in the interests of the profession at large. And we hold that the Council are the more bound to do so, from the fact that it is very much the fault of the Institute itself that things are in this disastrous state. Without at all intending it, we consider that the Institute has a most unfortunate capacity for putting itself in the wrong with the public. In this very matter of the ownership of drawings, they have merely allowed things to slide, have given way to every fresh exaction of the law without any overt protest, and because the law seemed to be against them they have met it half way; withdrawn from their scale of professional charges expressions which implied the ownership of the drawings by the architect, and by the use of the expression that the commission is (in the first instance) for "the necessary general and detailed drawings and specifications" they have, to the eye both of the ordinary and the legal reader, to all appearance given away the case. It is true that the Council did not mean it in that sense; individual members tell us so emphatically; but they have contrived to word the clause so that it reads that way and is capable of and even invites an interpretation which would support the legal view of the ownership of the drawings. They have practically allowed the rights of the profession which they represent to be watered away.

It is surely the bounden duty of the Institute to take the first possible steps to undo that portion of the mischief which is indirectly due to their action (or inaction), by recasting the terms of the Scale of Charges, which, as they stand, are incompatible with the meaning they were supposed and intended to have; and secondly, by standing forward on behalf of the profession and endeavouring to bring about an amendment of the law. Here, no doubt, the peculiar constitution of the English law seems to cause a difficulty. The "Code Napoléon" would have made short work of such a matter; it would have simply laid down what appeared to be the rights of the case and said—"This is the law." But it appears that in England no such simple procedure is practically possible. You cannot ask the House of Lords (the last refuge of appeal) to make a new enactment; you can only ask them to consider a judgment and reverse it, thereby creating a new precedent which effaces the old one. It seems a clumsy and unwieldy system, but there is apparently no getting round it. On this system, however, it is surely possible to appeal for a reconsideration of Ebdy *v.* M'Gowan, or a restriction of its interpretation. Here again is where the Institute seem to have completely failed us for all these years. As far as we can ascertain, they have simply taken the opinion of lawyers as to what the bearing of the law is. To a lawyer of course (not unnaturally) the law is a sacred thing; if you complain that some particular effect of legislation is unfair to you, he simply says that is the law and you cannot help it. The Institute of Architects seem all along to have been content with this; we know that they have consulted lawyers, but they have accepted the statement that the law is so-and-so, and there they have stopped. They ought to have endeavoured to show that the law was a mistake and an anomaly, based on a total misunderstanding of an architect's position; and that is what they ought to endeavour to do now. To say that it is no use, and that they do not wish to undertake an enterprise in which they are likely to fail, is a most pusillanimous policy. They ought to go on agitating about the matter until they succeed.

Whether, when the Institute Scale of Charges is revised (which we consider to be inevitable) any new principle should be introduced in regard to the case of plans made but not carried out, is a point that should be worth considering. Of course it seems perfectly illogical to say that the plans are the architect's property when the building is carried out, but that they are the client's when it is not carried out. It is an anomaly; but it does not seem to be recognised that it is an anomaly entirely creditable to the profession. Judges appear to regard architects who claim to keep their drawings as rapacious persons who want to be paid for what they do not supply. In reality, the fact that most architects are willing to hand over the drawings when a building is not carried out, illogical as it is, is really a piece of liberality; it is simply acquiesced in from the feeling that if a man does not go on with the building and pays half the commission he has got nothing for his money unless he gets the drawings. As we have before said, we think it is a mistaken policy charging for the drawings as a percentage of the commission; it would be better to make a fair charge for time and thought expended. At the same time we think that the case of charging 2½ per cent. on the estimated outlay and retaining the drawings is perfectly defensible on grounds of logic and fairness. As a rule, they do represent a good half of the work incidental to carrying out a building. It cannot be expected that a man is to give an architect the trouble of preparing drawings and then not pay him because he (the client) changes his mind about building. In that case, why are the drawings to be given up to him? If he really does not mean to build, they are of no use to him; if he does, he has got possession of them and can hand them over to another architect if he chooses, to carry out, which is grossly unfair to the original architect; or he may think he can carry them out himself, and thereby save the rest of the architect's commission. It would be perfectly possible for an astute person with no particular sense of honour to proceed on those lines of malice prepense; to get the plans all complete and then say "I shall not build at present, but I will pay your commission for the plans," get possession of them, and carry them out with the aid of a clerk of works. If it was a building intended to have any architectural character he would probably spoil it all; but he would not know that; and he would have done a gross injury to the architect without the latter having any remedy of any kind. And after all, what is the hardship or unfairness to the client in not having the drawings? If he did not know his own mind about building when he ordered the plans to be made, that is his own fault. If he wishes to build later on, the plans are waiting for him, and he has no more to pay in the long run than if he had gone on building at once. And why is he to take possession of A.'s plans and be able, if he chooses, to hand them over to B.? These are points which judges and lawyers do not seem to understand; and it should be the duty of the Institute of Architects, as the representative body of the profession, to put these matters before them in a proper light, instead of sitting down meekly and allowing men to ride over their heads.

THE WINTER EXHIBITION AT BURLINGTON HOUSE.

WE cannot this year speak of the "Old Masters" exhibition, for the Old Masters, as the phrase is commonly understood, have been dismissed in favour of a representative exhibition of a painter whom future generations may, no doubt, class as an Old Master in the sense in which we now apply the expression to Vandyck or Reynolds. And a very representative exhibition it is, and a much more interesting one than some of the exhibitions of the miscellaneous works of older painters. Every side of G. F. Watts's genius is illustrated in it, and we feel able to come to some conclusion, in studying it, as to the position which the author of this great and varied life's work is likely to hold in the roll of modern English painters.

Two conclusions we arrive at are—first, that Watts's middle period was his greatest; secondly, as has been before observed in these pages, that he injured his art in his later years by regarding it too much as a Mission, and endeavouring to make his paintings

serve always the end of conveying some moral lesson. This side of his art has been far too much dwelt on and emphasised in critical reviews of his work which have appeared since his death. That a painter should consider mere artistic achievement as secondary to the desire to make people better by his painting is no doubt a very noble weakness, but it is a weakness, since it is an endeavour to make painting do what may be much better done in words, and it almost inevitably leads to the art being more or less sacrificed to the moral aim. When a painter could do and has done so many beautiful things, was it worth while to emphasise the vulgarising effect of the love of riches by so revolting a painting as "The Wife of Plutus"? a picture which no one would wish to hang in his house (or so we should have thought), and which one is chiefly desirous to forget. The real moral greatness in painting should lie in a greatness of style and feeling in the painting itself, not in the recommendation of a special lesson. Now "Love and Death," which we shall always regard as Watts's greatest and central work, is really a picture with a great moral grandeur inherent in it, but it is not a "lesson"; there is no conclusion to be derived from it that can be expressed in words; only it sets one thinking of the great issues of life, besides being grand and impressive as a design. If it were less grand in design, the meaning, so far as it has a meaning, would be the same, but it would no longer be impressive. And the same is true of the effort to put too much of allegorical meaning into a picture. We see this illustrated in the two nude figures entitled "Daphne" and "Psyche." The former, painted in 1872, has not been much exhibited, and seems to have been forgotten by many of the painter's admirers, as we have never seen any reference to it in the numerous articles that have appeared in magazines since the painter's death. It is a picture which a Greek might have painted, so perfectly beautiful is it in line and design, so statuesque in character, with perhaps, it may be admitted, a little coldness in colour as compared with the painter's later work; this however is possibly to be accounted for by the intention to give the painting a certain degree of conventional decorative character. It has no meaning or allegory of any kind; it is simply a thing of beauty. The "Psyche" in the Tait Gallery, painted at a much later period, is an attempt to symbolise in the nude figure the weakness and the tremulous nature of the soul; but the result is that the work is not beautiful; it gives a somewhat painful idea of a woman nearly destitute of life, or just about to faint away from exhaustion—"*anima vagula, blandula*": the "Daphne" is an attractive painting, the "Psyche" is not. In the category of works which have pure beauty for their object Watts did few things finer than "The Infancy of Zeus," which appeared, when it was exhibited at the Academy a few years ago, such a contrast to the kind of painting which he had been at that period exhibiting, that there was a rumour that it was an earlier work then first exhibited; but we see that in the Academy catalogue it is dated 1896, so that it was a happy return to the principles of his pre-moral epoch of painting. Watts must have been a good deal under the influence of Titian in painting this picture; not only do the figures and composition recall Titian, but even the landscape background is Titianesque both in character and colour. A much earlier work which shows the same kind of beauty, though not equal to the Zeus in colour, is the small picture of an infant Ganymede, the one numbered 195 (there are two editions of it), of which the head is of wonderful beauty. This was painted in 1864; we do not remember ever to have seen it before; for pure beauty it might compare even with Raphael's cherubs in the foreground of the Dresden Madonna.

As a colourist there is no doubt that, till perhaps the very last year, Watts was progressing during his whole career. That unhappy infant covered with leather, who comes out of the sea to the query, "Whence? Whither?" is indeed an instance of failure both in regard to colour and texture, and it is a pity that it was included in the Burlington House exhibition; and it is also an example of the dangers of "moral" painting, since there can be no question that whatever interest it possesses lies in the question asked and in the enigma of life thereby suggested. We should have preferred (in painting) a more human flesh-and-blood child, with no enigma. One would almost think that it is this moral element that paralysed the painter's hand, for the "Lilian," painted the same year, has all the old beauty of colour.

The pictures which more than any others, probably, will make Watts remembered are the "Love and Death" and the "Hope." The latter picture, indeed, though most beautiful and original as a painting, has always seemed to us a poor and sad conception of Hope, and one would much more have expected it to be named "Sorrow." By whatever name, however, it is one of the few totally original things in modern art, having no precedent, and differing from everything else that one has seen in painting. There is in the collection another picture, not so universal in its appeal, but which is certainly one of the most remarkable of Watts's idea of conceptions—viz., "The Nixies' Foster-daughter"; the human child stolen and brought up by the Nixies (whoever they are), and recalling something of her former life through finding a necklace. The face is beautiful and unusual; but what makes the extraordinary charm of the picture is its colour, which seems a kind of inspiration, and defies analysis.

The large early painting of "Time and Oblivion" (1848) is striking from its grand decorative character; one would like to see it carried out in mosaic, for which it is very well suited. Among others that we would specially dwell on is the "Ariadne" (1888) belonging to Mr. Hirsch, noteworthy as a treatment of an ancient legend of tragedy in a truly pathetic and poetic spirit; not only is the composition fine, but the head of Ariadne has a majesty of grief which places it in quite a different category from the kind of painting of classic legend that we too often see in modern English art; the ordinary model with a classic or legendary name affixed to her. As an example of remarkably rich and harmonious colour we would draw attention to the painting of a girl looking out of a window, under the title "The rain it raineth every day"; it does not, like the colour of the "Nixies' Foster-daughter," elude analysis; you can trace out the scheme of colour and the principle on which it was worked out; but it is remarkably beautiful and perfect. The "Paolo and Francesca," too, is probably the finest illustration that painting has produced of that unhappy pair, and it is worth while to compare the large picture (180) with the small study (152), and see how greatly the expression and character of the heads has been intensified in the larger work, the smaller one being in this respect almost commonplace in comparison, though the composition is the same.

The landscapes afford a curious problem; they are so unlike landscape-painting as generally understood; so little of actual nature in them; and yet so impressive. They are in fact rather records of the sentiment of a landscape as the painter felt it, than landscape-painting, but they have a power and suggestiveness that many more finished landscape-paintings have not; they illustrate emphatically the fact that landscape painting depends upon the mind of the artist rather than on the facts of the scene.

The collection in a further room of paintings and drawings by G. F. Sandys goes to confirm our previous conviction, that the importance of Sandys's work has been somewhat exaggerated. These drawings are rather stiff in character, and show that the artist's powers were limited. What he could do best is illustrated in two or three carefully finished portraits of ladies, but on the whole the work is rather that of a man who, with original talents in art, did not get further than the initial stage of studies and drawings. Sandys would never have developed into a great painter, and he must be regarded as rather a light-weight for the Burlington House Winter Exhibition.

In connexion with this exhibition also is shown, in a separate room, a one-tenth scale model of the Victoria Memorial as intended. It is a grand work as shown here, with its sculptured terrace, and steps, and the concentric basins of water on the outside of the circle. Judging from the model, the work promises to be worthy of the occasion and of the site. But why, oh, why, was not a new façade built to Buckingham Palace, to form an architectural background worthy of the memorial?

THE LA SCALA THEATRE.—In describing a visit to this theatre by the Architectural Association (page 636 *ante*), we referred to the composition—"stuc"—in which the cornice and wall panelling were carried out, as being made and fixed by a French firm. We find that we were misled in regard to this; the tender was from a French firm in the first instance, but proved too extravagant, and ultimately the material, or something practically the same, was made and fixed by English firms.

NOTES.

Reafforestation.

SOME effort is now being made to encourage afforestation in Wales, an example that deserves the imitation of landowners in all parts of the United Kingdom. The subject is one appealing directly to architects and builders, especially in view of the fact that in a country such as the United States active steps are already being taken for the conservation of forest resources for the present and future benefit of those great industries in which timber is largely used. The necessity for stimulating efforts to perpetuate American forests as permanent resources of the nation is so strongly recognised that a congress is now sitting at Washington, under the auspices of the American Forestry Association, with the object of fostering a more intelligent appreciation of the forest in relation to the industries dependent thereon. When such a gathering is thought necessary in the United States, surely it is time that British landowners should devote attention to measures calculated to develop the possibilities of their native land and to revive an important and profitable industry.

The Aylesbury Railway Accident.

TWO INQUIRIES have been held into the recent accident on the Great Central Railway at Aylesbury station—one by Colonel Yorke representing the Board of Trade, and the other by the Coroner for Mid-Buckinghamshire. It is too early to expect the report of the Board of Trade inspector, but there is little reason for believing that the conclusions drawn will be materially different from those embodied in the verdict of the Coroner's jury. The curve at Aylesbury is of such radius that the company had established a speed limit of fifteen miles an hour, and if this had not been exceeded there would have been no accident. The evidence given by two signalmen, a ganger, a platelayer, and several fogmen, makes clear the fact that the train entered the curve at an excessive speed, which was estimated by one witness at fifty miles an hour. As the driver of the train was one of the four men who lost their lives in this regrettable occurrence, it is impossible to ascertain the reason for non-compliance with the company's regulation. Probably, as the Coroner's jury believed, the fog gave rise to some uncertainty as to the position of the train with respect to the curve, and possibly the greasiness of the rails was equally responsible for the high speed of the train, by causing the wheels to skid when the brakes were applied. We are quite in accord with the recommendations that the Aylesbury curve should be modified at an early date, and that in the meantime the distant signals should be kept at danger and properly "fogged" in thick weather.

Inadequate Sea Walls.

IN our "Note" of Oct. 22, 1904, we referred to the indifference exhibited by the local authorities to the protection of Sheerness. The high tide of last week affords further evidence of the danger to which the town is exposed, through the insufficient height of the sea walls. The tide then rose to fully 5 ft. above the normal high-water level and flowed into the town, with the result that the police station and the dockyard railway station were cut off and the low-lying district, known as Blue Town, was flooded. Moreover, the water rose above the top of the dockyard sea walls, flooding that part of the yard in front of the Admiral-Superintendent's offices, and the basement of the Gunnery School. On the same day some serious breaches were made in the sea wall near Minster, the wall being injured for a length of about 300 ft. and a gap formed, 30 ft. in width, through which the sea entered in large volumes and, flooding the marshes, threatened Sheerness with an attack from the rear. So imminent was the danger that the town and military authorities joined forces in temporary measures of defence by depositing sandbags in the breach. At Chitney marshes, near Queenborough, the sea walls were broken through; the tide submerged a large area of land and drowned a large number of sheep. Various factories on the banks of Queenborough Creek were flooded, and on the opposite side of the Thames the lower part of Southend was completely submerged. Occurrences of the kind show the almost inconceivable lack of foresight that prevails on the shores of the Thames estuary. In places where sea walls are built, they certainly ought to afford protection from the highest possible tides, an axiom that is understood and acted upon in Holland, a country in which coast protection works are designed by sensible men who place no reliance on chance or good luck.

The Standardisation of Water Pipes and Fittings.

A COMMITTEE is now engaged in drawing up standards for regulating the sizes of waterpipes, taps, valves, and fittings throughout the country. This body, which has no connexion with the Engineering Standards Committee, includes representatives of the leading manufacturers, the Plumbers' Company, the Metropolitan Water Board, the Masters' and Operatives Plumbers' Associations, the Royal Institute of British Architects, and has the support of the Board of Trade and the Admiralty. Stated briefly, the object is to secure the adoption of standard dimensions for all pipes and fittings, both lead and iron, and for all taps, valves, and auxiliaries. In order that such a scheme may have a reasonable chance of success it is necessary that the co-operation of the various water companies and municipal water authorities should be secured, and we understand that many of these have already promised their support. But the scope of the Committee includes the regulation of other matters. It has been decided that flushing cisterns shall be provided with stop-cocks to prevent flooding, the metal to be used in the manufacture of fittings and their component parts will be specified, a sub-committee will be appointed to inspect all patterns devised. This all sounds very well in a sense, but we fear that there will be a good deal of trouble caused to householders, and a good many unreasonable demands made upon them. When we remember that one large water company refused, for reasons best known to itself, to sanction Lord Kelvin's tap within its jurisdiction—the most scientifically designed tap of modern times, we may naturally feel a good deal of apprehension as to what may be forced upon us by doctrinaire committees on water-fittings.

Heavy Motor Traffic.

NOTWITHSTANDING the recent date of the development of mechanically-propelled vans and lorries in this country, very satisfactory progress has been made, in spite of the legislative restrictions which have hampered designers and reduced the advantages of their vehicles to industrial firms. The Heavy Motor Car Order, 1904, now on the point of issue and to take effect on March 1, embodies the new regulations approved by the Board of Trade, will have the effect of removing some serious disabilities. For instance, the net maximum weight of a motor van will be raised from three tons to five tons, and of the van with one trailer from four tons to six and a half tons. Similarly the combined weight of the van and load is raised to twelve tons. At the same time the width of 7 ft. 6 in. will be allowed, for vans of over three tons weight. The value of these concessions will be realised by the consideration that a heavy motor van cannot be employed economically unless it displaces eight horses or runs at a speed which is objectionable from the public point of view. To guard against undue injury to highways heavy motor vehicles will have to be provided with wheel tires of ample width, the minimum being 5 in. for hard tires, and adequate springs are to be fitted between the axles and the frame. Further, speed is to be limited to five miles an hour for any van weighing more than three tons empty, or drawing a trailer, but vans of less than three tons weight may travel at eight miles an hour. The new regulations will involve considerable activity in the way of new designs, and for this reason we may not see any marked results for some months to come, but it seems certain that the industry will receive a great impetus with concurrent advantage to the general public.

Landscape Exhibition.

THE exhibition of six landscape-painters, which has been an agreeable annual incident for some years, is held this year in the rooms of the Society of Water-Colour painters instead of in the Dudley Gallery. Sir E. Waterlow has seceded from the group, and Mr. Jas. S. Hill has taken his place. There is too much tendency to dingy painting in some of these works; Mr. J. S. Hill's "Harlech," for instance, seems to have lost all the light and joy of nature; and a good many of Mr. Peppercorn's smaller works are what we should call smearing rather than painting; his trees have lost all semblance of trees, and are simply masses of pigment. Trees are not like this. His large work called "Moonlight" is more to the purpose, though it does not strike us as quite cold enough in tone for moonlight. Mr. Leslie Thomson is the finest of the six in composition; "La Pernelle, Normandy," is a grandly built-up landscape; and "Norfolk Mill," "Norfolk Marshes," and "By the Sea" are all fine works. Mr. Allan's "Ebbing Tide" and one or two other coast scenes are admirable; also his small inland scene "Amiens"

(appropriately French in style); in "Honfleur" the ships are rather too ragged in execution. Mr. Aumonier's "The Citadel, Montreuil," is one of the best in the gallery, fine both in effect and composition, in which latter point Mr. Mark Fisher is not so complete, though he shows, especially in "The Mill-Stream," his usual power of light and air effect. Composition rules the subject in Mr. Leslie Thomson's pictures; it mingles with it in Mr. Allan's and Mr. Aumonier's; it is rather lost in Mr. Fisher's; while Mr. Peppercorn's pictures are composition and little else, in the present exhibition, at least.

Exhibition at the Dudley Gallery.

We do not understand why the exhibition of water-colours at the Dudley Gallery is called a "Panel" exhibition, except it be for the sake of having a distinctive appellation. The works are no more "panels" than any other exhibition of water-colour pictures. The works of each artist are grouped separately, and commence with seven drawings by Mr. E. R. Hughes, of which "Perdita Found" is the best thing in the room. This is a highly-finished water-colour breathing the very atmosphere in "Winter's Tale"; the edge of a wood near the sea, where the two shepherds find the "barn—a very pretty barn," the child smiling up at them and holding up its little hands. As a Shakespeare illustration it is a complete success. Not so the chalk study of "Antonio," which does not convey the idea of the character; still less the life-size head of "Beethoven," who has suffered a good deal at the hands of painters. Among the other works Mr. Frank Mura's small landscape studies in black and white are very interesting, and have the makings of pictures in them, especially Nos. 9, 12, and 14. Mr. Thorne Waite exhibits some small landscape studies, among which "The Dover Road" is especially good, and would work out finely on a larger scale. Mr. W. Rainey's "A Ring of Roses" is a pretty group of country children dancing round in a ring. Of Mr. Russell Dowson's eleven works, two scenes at Antibes (53 and 62) are worth attention; so are Mr. Selwyn Image's drawings, despite their curious style and execution; they give rather the impression of being old drawings from some sketch-book of the eighteenth century. Mr. Frank Walton exhibits a fine study of rocks at "Pordenack Point, Land's End." Mr. Montague Smythe's works are mere sketches, but full of artistic feeling; two of them, a "Reverie" and "Solitude," seem to have been, consciously or unconsciously, done under the influence of Corot, and might very well pass for studies by that painter. Signor Giampietri shows his usual excellence in the treatment of bits of old Italian architecture, especially in "Steps of the Grants Fountain, Villa Lante," with its balustrade on which vases and consoles alternate to form a grandiose decoration. Mr. Robert Little's contributions are hardly up to his usual standard, except the fine sketch entitled "Belfry, Hamper Mill."

Royal Academy Lectures.

The programme of the Royal Academy Lectures to Students for this season is now issued complete. Professor Clausen's Lectures on Painting, which commence on the 9th, we have before drawn attention to. The further announcement is that of six lectures on Sculpture by Mr. Alfred Gilbert (the special subjects of each lecture are not stated), two by Dr. Waldstein on Greek sculpture; and four by Professor Aitchison on Vitruvius. We confess that we should have thought enough had been said of late years about Vitruvius, and that lectures dealing with and illustrating the art of architecture from a modern standpoint, as Mr. Clausen's lectures dealt with painting, would have been of more value to the Academy students.

MYSTERY AS AN ARCHITECTURAL QUALITY.*

The love of mystery is akin to the love of knowledge. It is a universal instinct of mankind. It was not the aboriginal savage, but the scientific Egyptian, who devised a plan for his temples of which mystery is the very keynote; and even the rationalistic Greek must have his Eleusis wherewith to feed this universal craving.

Without being careful to define the term logically it may be useful to distinguish the two senses in which the word is used. (1) Mystery absolute: something which we may apprehend, but not comprehend, that which transcends the powers of thought, and about which speculation is either superfluous or mischievous. This is the theological sense. (2) Mystery relative, *i.e.*, to man's knowledge, or condition of growth at any given period of time, as, *e.g.*, the *phenomena* of light and sound may be said to be mysterious to the blind and deaf. It is under this latter head that mystery as an æsthetic quality falls. We may describe it, then, as that which is obscure until it is explained, not as a puzzle without a solution. In this sense mystery is opposed to obviousness, or, if I may be allowed the word, to blatancy—never, I think, to simplicity or lucidity, the true contrary to which is mystification or confusion.

"To many temperaments," wrote a reviewer in the *Quarterly*, "it is extremely disagreeable to be kept in the trammels of mystery." But, as Arnold Toynbee pointed out, "it is vain to chafe at mystery—it is as appropriate to consciousness as clearness to the intellect. We are very near the fount of all things when we feel that there is mystery." We cannot escape it, and for the following reason:—

"Poetry," says Matthew Arnold (in words that may well apply to art generally), "is nothing less than the most perfect speech of man, that in which he comes nearest to being able to utter the truth."

Art has to deal with *phenomena*, which are "but shadows and likenesses of the absolute truth that reveals itself to men in different ways, but always imperfectly, and as in a glass." Hence the sense of vagueness that one so often feels in poetry, a vagueness that is partly subjective, due, *i.e.*, to the reader's lack of imaginative grasp, and partly inseparable from the poet's work; for, after all, human speech is a clumsy instrument for recording and conveying thought, and words are but an index or signpost to the poet's meaning. It is this blurred vision, this approximation to the absolute truth, that makes the greatest art mysterious. Nature herself is full of mystery; the complexity of forests, the monotony of deserts, the height and depth of mountains and ravines, darkness and silence, sleep and death—all are mysterious. The value of this quality in the arts generally arises, then, from its correspondence with the same quality in the natural and spiritual worlds, whence art draws her subject-matter; in other words, from its truth to nature.

Its function is to arouse the imagination of the beholder. It is, indeed, as a challenge to imagination that it makes its presence felt to most of us; and to those in whom the imaginative faculty is well developed does this quality most of all appeal.

The slightest means suffice to set the active imagination at work, *e.g.*, a very superficial analysis shows Hood's powerful and fantastic poem, "The Haunted House," to have been suggested in the first instance solely by "those boards obscurely spotted," which, to the poet's eye, tinge with their own lurid colours all the ordinary incidents of decay and ruin, and give a sinister import even to the vanished midge and deserted cobweb.

Not only in poetry, but in the higher romance and drama, does the mysterious play a conspicuous and recognised part. The painter also must be, to use Ruskin's phrase, "truthfully various and obscure." The sculptor's appeal is more obvious than that of the painter. "I would not like," said Thackeray, speaking of Michael Angelo's great work—"I would not like to be left alone in a room with the Moses." The same sense of vague uneasiness, as in the presence of some unseen, but felt, spiritual intelligence, produced by another work of the same master, is well conveyed by the lines in which Rogers describes the Duke Lorenzo in the New Sacristy at Florence. "It fascinates, and is intolerable." But it is, I think, to music, and architecture, as being entirely creative and not imitative arts, that mystery is especially appropriate. In the former it reaches perhaps its highest expression in Beethoven's Symphonies; and as to the latter, if the imperfection of language as a medium for transmitting thought be a necessary source of mystery in poetry, what are we to say of stone, wood, and clay in which the architect must find his inarticulate utterance?

We have seen that if art is to be true to the rock whence she was hewn, she must share the quality of mystery with nature herself. Nevertheless, I would guard against being supposed to claim too much, too large a sphere, or too great importance for its influence in æsthetics. It is, after all, but one of these countless qualities which combine to make up the perfect work of art. This much, I think, may be claimed for it, that though we cannot say that mystery is essential to true beauty, yet in the very noblest examples it is ever present. In the words of Bacon, "There is no exquisite beauty but hath some strangeness in the proportion." It is, in fact, the finishing stroke that puts us in touch with the infinite. "No work of any art," writes Ruskin, "in which this expression of infinity is possible, can be perfect, or supremely elevated, without it, and, in proportion to its presence it will exalt and render impressive even the most tame and trivial themes."

In attempting to enumerate and in some sort classify certain sources of mystery in architecture, I am aware that there is danger of treading on forbidden ground. As in all æsthetic analysis, there is this risk: that "we murder to dissect." For mystery itself is intangible, ethereal, elusive. It is overheard, rather than heard; felt, rather than seen. Insight, not sight, is needed, since

> We are led to believe a lie
> When we see with, not through, the eye." *

But we have to do not so much with the abstract quality, as with the concrete forms and forces that seem to us, if not to combine to produce it, at least to enshrine and clothe it, and through which the perception must penetrate to reach the spiritual essence within.

I have placed first that which seems to me the most fruitful source of the mysterious element, viz., *Reserve and Suggestion*. These are, to a great extent, correlative, *i.e.*, the mind of the designer imposes the restraint, the imagination of the beholder responds with the suggestion. No doubt the designer suggests also, but it is chiefly by silence that he does so. It is this reserve which modern architecture for the most part lacks. It puts, as the phrase goes, all its goods in the shop window. One glance and we have seen into the heart of it. We have no longings, no supposings, no musings over it. It does not kindle dreams, nor is it touched with visionary impulses. There can be no tender, pathetic strain where all is loud and definite—every note accentuated with beat of drum.

Complication, that is, complexity of plan, may, I think, be rightly considered under the heading of reserve, because it is by this very complexity that the designer causes his meaning to be grasped bit by bit. He does not intend that we shall understand him too easily.

And so in churches—and I am thinking chiefly of religious buildings—four or six aisles are more mysterious than two. It is the mystery of the maze or forest—not very subtle,

* A paper read before the Edinburgh Architectural Association on Wednesday, Nov. 23, by Mr. F. C. Eden.

* Blake.

perhaps, but undoubtedly effective. Again, a frequent device of the Middle Ages, viz., deflecting the axis of the chancel from that of the nave (which is, by the way, a purely æsthetic device, not a symbolic one), was used with the same object; and so also the apse with its radiating chapels, or any plan which constantly brings fresh perspectives into view as the point of sight is changed. In illustration, the plans of Canterbury, Cordova, Oxford, and Burgos may be alluded to; also crypts generally, and that wonderful group of buildings known as S. Stefano, at Bologna, where we find seven complete churches, differing in level, size, plan, and age, under one roof.

In connexion with complexity of plan may be mentioned *Complexity of Grouping*, and of this the Piazza Maggiore at Bergamo, described by Street, is a striking example:—

"The very position of the Broletto," he writes, "teaches us a lesson, forming on one side the boundary of the piazza, on the other it faces, within a few feet only, the church of S. Maria Maggiore, and abut at one end on the west front of the Duomo; and to this singularly close, even huddled grouping, much of the exquisite beauty of the whole is owing. No doubt, S. Maria and the original cathedral were built first, and then the architect of the Broletto, not fearing—as we would fear now—to damage what has been done before, boldly throws his work across in front of them; but upon lofty open arches, through which glimpses just obtained of the beauties in stone beyond make the gazer even more delighted with the churches when he reaches them than he would have had they all been seen from the first. It is, in fact, a notable example of the difference between ancient grouping and modern, and one instance only out of hundreds that might be adduced from our own country and from the Continent of the principle upon which old architects worked, and yet people, ignorant of real principles in art, talk as though somewhat would be gained if we could pull down St. Margaret's in order to let Westminster Abbey be seen; whereas, in truth, then, certain result would be the loss of that kind of intricacy and mystery which is one of the chief evidences of the Gothic spirit."—(*Brick and Marble*, etc.)

Slightly differing from the last is *Sub-division of a Simple Plan*. This, again, is an illustration of the principle that the eye must not be allowed to comprehend all at once. This is the chief æsthetic function of screens. Not long ago the vicar of a large town church was discussing the desirableness of a chancel screen to which he was himself opposed; and to justify his opposition, he pointed out, as an insuperable objection to a high screen, that, from a certain carefully selected position in the nave, the cornice would appear to cut the reredos in two, or perhaps it was the east window, but it matters not. Nor did the obvious reply, that there was only one particular spot in the church where this deplorable optical effect would be produced, tend to modify his conviction. It is easy enough to demonstrate the irrelevancy of such a contention, for it is all a question of the position of the eye, and that, happily, is not fixed. This little incident is typical of a constantly recurring objection—people forget that it is the very object of a screen to obstruct, baffle, and perplex the sight. Art, no less than the religion she serves, has her "discipline of the secret" and her "economy" of truth. True art never deceives, but reserves her secrets for the right persons and the right times.

It was stated by no less an authority than the late Archbishop of Canterbury that a huge unobstructed parallelogram, such as Westminster Hall, was the ideal plan for a modern church. Well, there are, and have been for centuries, two types of church plan: one northern, Gothic and mysterious; the other southern, Italian and spacious—the one based on reverence, the other on sacrifice. It is useless to discuss the merits of the rival systems, since each has produced, and may produce, such magnificent results; but there can be no question as to which of the two is indigenous to the soil of these islands. In any case, such a line of thought as that of the vicar above-mentioned, who added, truly enough, that mystery was opposed to the spirit of the age, showed a complete misconception of the fundamental idea upon which the former type, that familiar to us nevertheless, is based. It is a misconception that has been rife among restorers, from Wyatt the Destroyer down to the present time. Cathedral churches especially have suffered from the fallacy of the vista, or unimpeded view from end to end of every part, to which have been sacrified so many solid screens and central organs. On the contrary, as mediæval architects were well aware, the more a church is divided and subdivided with walls, screens, grates, and veils, the better it becomes both devotionally and æsthetically—æsthetically, because its apparent size is increased; the eye is thwarted and curiosity stimulated there is a feeling of expectancy, a sense of power in reserve; a suggestion of infinity. Such a church becomes in a word mysterious. Nor is the mystery that comes from such subdivision any bar to devotion. "I should like to lay it down as a principle," said a great philosopher, "indeed, it is a principle, that no place can be devotional but what is small." "When thou prayest enter into thy closet." Of the great altar screens, such as we find at Winchester and St. Albans, Walcott, the antiquary, finely writes: "Whilst they obstruct the view of the eastern limits of the church, which hitherto augmented the sublimity of the sanctuary, they resemble a gorgeous veil before some further Holy of Holies, which our earthly services faintly shadow."

The last sub-heading under reserve is *Incompleteness*. This may be actual, as in many old buildings, or merely suggested for purposes of his own by the designer. There is a type of west front not uncommon abroad, where a beginning is made of two towers, one only of which is finished, as at Strasburg and elsewhere. The fancy is then better pleased to picture the completed design than it would be by seeing it actually realised; and I think few of us would wish to see a second tower added to Antwerp. And doubtless this is one of the reasons why the old fragmentary Cologne Cathedral was far more sublime—as those who have seen both tell us—than the completed building.

The rhetorical figure called *Aposiopesis*, by which the speaker leaves a sentence unfinished for the audience to supply the conclusion, has its analogy in architecture. The design starts a train of thought, and then breaks off suddenly. I have noticed the employment of this device in the late J. D. Sedding's works. I recollect a design for a tower—never, I think, carried out—which became suddenly rich in the belfry stage, and then, before the design was worked to a logical conclusion, it was impatiently cut off by the heavy projecting eaves of the roof, leaving the spectator free to complete the suggested thought as he chose.

The *Unexpected* may be claimed as a legitimate source of mystery, though chiefly concerned with detail and furniture. We are startled by points of interest in unexpected places, or by coming perhaps upon realistic sculpture in out-of-the-way chapels and nooks, Calvaries and sepulchres of life-sized figures and the like. But though these may, nay, should be, fearful and severe, there must be nothing to excite disgust, as does so much of modern religious sculpture on the Continent. I am no advocate for mystery of the skull-and-cross-bones type.

But experience shows that this method of exciting the imagination by surprise is easily abused, and there is no fear that the self-respecting architect will fall into the cheap, stagey trickery with which one is only too familiar abroad—concealed and reflected lights, false painted perspectives, and devices in luminous paint (as I have seen in a crypt at Boulogne). Such unworthy methods are soon detected and merely excite contempt.

A word as to gloom. I am inclined to doubt whether it be a true source of mystery, except in combination with other attributes. I know many modern churches which are gloomy enough in all conscience without being in the least mysterious.

Gloom to have real value must be relative, not absolute; relative, that is, to the light outside. We can appreciate gloomy churches in Spain, but not here. In the south their cool interiors are a relief from the relentless glare of the sun; here for three hundred days in most years they would merely repel. The effects of gloom are:—

1. It increases the apparent size of a building; and this, not by equally diffused gloom, but by unequal lighting.

2. To the parts remote from the eye it gives the effect of gradual melting into nothingness, or infinity.

3. Part being lost to sight, the imagination is called upon to supply the deficiency. Crypts and catacombs derive much of their impressiveness from this source, but also from their complexity, association with the dead, and so forth.

Under this heading I may be permitted to suggest the question whether the artificial lighting of churches has been adequately approached from this point of view. Much time and ingenuity have been expended on the design of gas and electric lights fittings—far too much to my thinking—too little for the arrangement and disposition, quality and quantity, of the light itself, and it is thought that enough has been conceded to art when the ironmongery has been architecturally treated. But surely church lighting, considered quite apart from fittings, has extraordinary capabilities for artistic treatment, though the garish aspect of many churches when the gas is lit gives but small promise of any such possibility.

Its special function in this respect lies in developing certain qualities of the building, chiefly mystery; and here not so much by what it does as by what it leaves undone—that is, by judicious disposition of shadow. Nothing is commoner in a town church when lit up at night than an entire absence of shade or shadow Light, however, when equally diffused throughout an interior—and this is the ideal aimed at in most schemes for lighting—makes accentuation, essential as it is to artistic success, impossible. The great evil from which we now suffer is over-lighting, originating partly from ignoring the real purpose for which light is wanted, and partly from the fatal facility with which gas and electric light lend themselves to abuse in this respect. Nobody ever saw a church overlit with candles. Artificial light is wanted in a church in order that the ceremonies may be reverently performed, that people may come and go with ease and security against panic, and that those who wish to do so may be enabled to read their books. Hence, if the light is put where it is wanted for these purposes and there only, *i.e.*, near the floor and not up in the roof, and shaded so as not to tease the eye, we have gone a long way in the direction of a rational method of lighting, and one that will help, not mar, the expression of the architecture.

Next, any highly *imaginative design* possesses an element of mystery, and this, I think, for the reason that all design of the highest order has something of inspiration. It comes from without. The more spontaneous and inevitable the design appears, the more we wonder at it.

Mere *size* possesses no charm on this side of the Atlantic; nor is it in the least mysterious, except so far as it can suggest infinity. "The vastest bulk is no nearer infinity than the most minute, if it be definite bulk." * The Middle Age builders, especially in Italy, employed many methods for baffling the eye and, as far as possible, preventing it from gauging the exact size of buildings. For instance, they would gradually diminish the arch openings of the arcade eastwards, as in the Duomo of Fiesole. They would also lower the capitals progressively, at the same time sloping the floor upwards or raising it by a step in the middle, as at Sta. Maria Novella. Sometimes they would gather in the walls eastwards, as at S. Stefano, Venice, where these actually approach one another to the extent of 16 ft. The result of these devices, and many others of the same kind, is not necessarily to increase the apparent size of the building—it is, indeed, obvious that they might have the opposite effect—but to destroy the sense of *definite* size, and to suggest infinity also by gradation and progression. Certain forms impress the mind with spiritual ideas, *e.g.*, roundness expresses finality and completeness; curves and gradation suggest infinity. These forms, in conjunction with great size, are the cause of the majesty and power of the dome. "Under the dome of S. Paul's," says a modern writer, "we are awed by this feeling of vastness of space—it is the infinite made finite."†

I think it not improbable that St. Mark's, the lower church at Assisi, and many of the Byzantine churches owe much of their mysterious impressiveness to the extreme richness of their materials and decoration. But it is chiefly in small objects that abundance and intricacy of detail produce a kind of mystery—from the runic monsters of Scandinavia, "inveterately convolved," to the sumptuous looms of Genoa and Bruges. Even a pattern may be mysterious.

With many an old building *situation* is a more potent factor in rousing the imagination and the sense of expectancy than any conscious effort of the architect. But if his building match its situation nature will second his endeavour. When the mediæval workers had to build upon a rock they rooted their masonry as it were in the crevices of the rock, so that the building seems to grow out of and form part of nature's architecture. Nowadays we

* Ruskin. † A. Toynbee.

seldom build upon a crag if we can help it, but when obliged to do so we blast the top to make a comfortable platform on which to set a smug building that would be equally suitable upon a level plain. So all mystery of situation is lost. Still, in dealing with the outlying parts of a building, the enclosures, and approaches, it must be the architect's endeavour, when he would make his building mysterious, to bring about a state of mind in which such impressions are most readily received. "So the spectator," says Ruskin, "is brought to your work already in an excited and imaginative mood. He has been impressed by the cathedral wall as it loomed over the low streets before he looks up to the carving of its porch, and his love of mystery has been touched by the silence and the shadows of the cloister before he can set himself to decipher the bosses of its vaulting. . . ." You must meet this imaginative temper half way; you must "touch the sense of terror, or satisfy the expectation of things strange, which have been prompted by the mystery or the majesty of the surrounding scene. And thus your leaving forms more or less undefined, or carrying out your fancies, however extravagant, in grotesqueness of shadow or shape, will be for the most part in accordance with the temper of the observer; and he is likely, therefore, much more willingly to use his fancy to help your meaning than his judgment to detect your faults."

Remote age, I have placed last, because the mystery in perhaps the majority of cases arises more from association than from any intrinsic property of the architecture itself. This, together with their incompletenesss, is the mystery of ruins. The mediæval life of castle and cloister is a thing outside our experience, and in the distance appears surrounded with a halo of romance; and so buildings which to contemporaries were perhaps commonplace will be endowed by Time with properties both new and strange.

But, after all, mystery refuses to be docketted and pigeon-holed, and I would not be understood to imply that the qualities of reserve, gloom, etc., just enumerated are other than secondary and contributory causes in its production. It is easy to say that the undercroft at Canterbury is mysterious because it is dark and complicated; but what of a badly planned basement, which may combine these attributes in a superior degree? Is that mysterious also, and if not, why not? And if the thickly-planted columns of a crypt increase its mystery, would the same effect be produced by a forest of steel stancheons; and will a glazed-brick corridor, however narrow, dark, and tortuous, be as mysterious as the straightest alley in the catacombs?

In conclusion, I would submit that mystery is the resultant of many converging forces, some of which cannot easily be traced to their starting point; and is of so subtle an essence that it is liable to be dispelled by the slightest breath of the commonplace and the vulgar. F. C. E.

SPRING-GARDENS, CHARING CROSS, AND WHITEHALL: 1801–1900.

Spring-gardens.—The lettering "Mr. Penn's garden" (10, New-street) on T. Chawner's Survey of 1804 (Fig. 1) explains in a measure an announcement in the *Times* of February 26, 1802:—

"Lord Malmesbury and Mr. Penn have obtained a grant of the Crown of so much of the ground as lies within the angle of the wall at Spring-gardens. The wall is to be straightened and the space within will give Mr. Penn an agreeable area before his windows, and add to his Lordship's garden. The work is already in hand."

Having obtained a grant from the Crown to build over the Wilderness in Outer Spring-garden in 1772, Frederick, fifth Earl of Berkeley, built a house (B, Fig. 3) which in part stood over the north entrance of the long narrow passage, plotted in a plan of 1690, leading into the old Spring-garden and Milk Fair in St. James's Park. Porter's sketch and plan, 1824, prove that next west to Berkeley House, and on the site of the French Huguenot Chapel (A), stood Wigley's auction mart, with its "Great Room" on the first floor, being, it appears, the "Great Concert Room in Spring Garden," in which Leopold Mozart and his two children gave their first concert in London on June 5, 1764. James Cox, a clockmaker of Shoe-lane, rented the Great Room for his museum, dispersed by lottery in May, 1775. The Huguenot Chapel, founded *temp.* William III., was replaced with the later St. Matthew's chapel-of-ease to the parish church, which until last autumn stood at the north-east corner of New-street. In 1858 the late Metropolitan Board of Works bought Berkeley House from Lord Fitzhardinge's executors for 500*l.*, and having taken a new lease of the site, removed in 1860 from No. 1, Greek-street, Soho, to the new offices built by F. Marrable, first Superintendent of Metropolitan Buildings and Architect to the Board. To Marrable succeeded in 1861 G. J. Vulliamy (*ob.* 1886), who raised the building by one story and made extensive additions at the rear. In 1876 the Board acquired the leasehold interests of the adjoining Nos. 10, 12, and 14. D. Burton had built No. 14 in 1827 for himself; his dining-room, the "Grecian Parlour," on the third floor, is commonly confused with Wigley's Great Room, which was burned, with the two adjoining houses, on April 2, 1785. Mr. Thomas Blashill enlarged the Board-room for the London County Council in 1889, by building a semi-circular wall and a public gallery on the north side, and rearranged the floor space for 137 councillors. Amongst the many houses since taken by the Council are Nos. 26–7, Cockspur-street, built by Mr. T. Barnes-Williams [January 12, 1889]* for the firm of E. Stanford on the site of the British Coffee House; the destruction of that unique example of Robert Adam's work is much to be regretted. The demolition in Spring-gardens and New-street (Figs. 3 and 4) has continued during eighteen years past. It was begun in the spring of 1886 with the pulling down of the terrace and the Gun-house in the Park. New-street and the terrace are plotted in a plan of 1726; the retaining wall at the end of the street and along the terrace was a piece about 225 ft. long of the old Park wall delineated in Aggas's map. In 1804 Chawner pulled down part (A–B, Fig. 1) of the wall, took a small parcel of the Park for the rounded sweep (C) at the end of New-street, and made the steps and footpath (E and D) descending into the Park. Many of the New-street houses were occupied by the Admiralty, and were handsomely fitted with joinery, and carved work in wood and marble.

Charing Cross.—For postal purposes Charing Cross extends from Northumberland-avenue to Great Scotland-yard (Nos. 1–34), and from Buckingham-court to Cockspur-street (Nos. 38–66). Nearly all of the houses were rebuilt during the century; some have been pulled down since. Messrs. Cox & Co., army agents, removed in November, 1888, from Nos. 1–2, Craig's-court, to No. 16, designed for them by Ewan Christian (*ob.* 1895); No. 43, Messrs. Cocks, Biddulph, & Co.'s, is by Richard Coad. In 1900 Mr. J. Oldrid Scott built the Spring-gardens front of the bank, on the site of No. 31, formerly No. 20, a house well known to architects.

* Dates within *square* brackets relate to illustrations in the *Builder*.

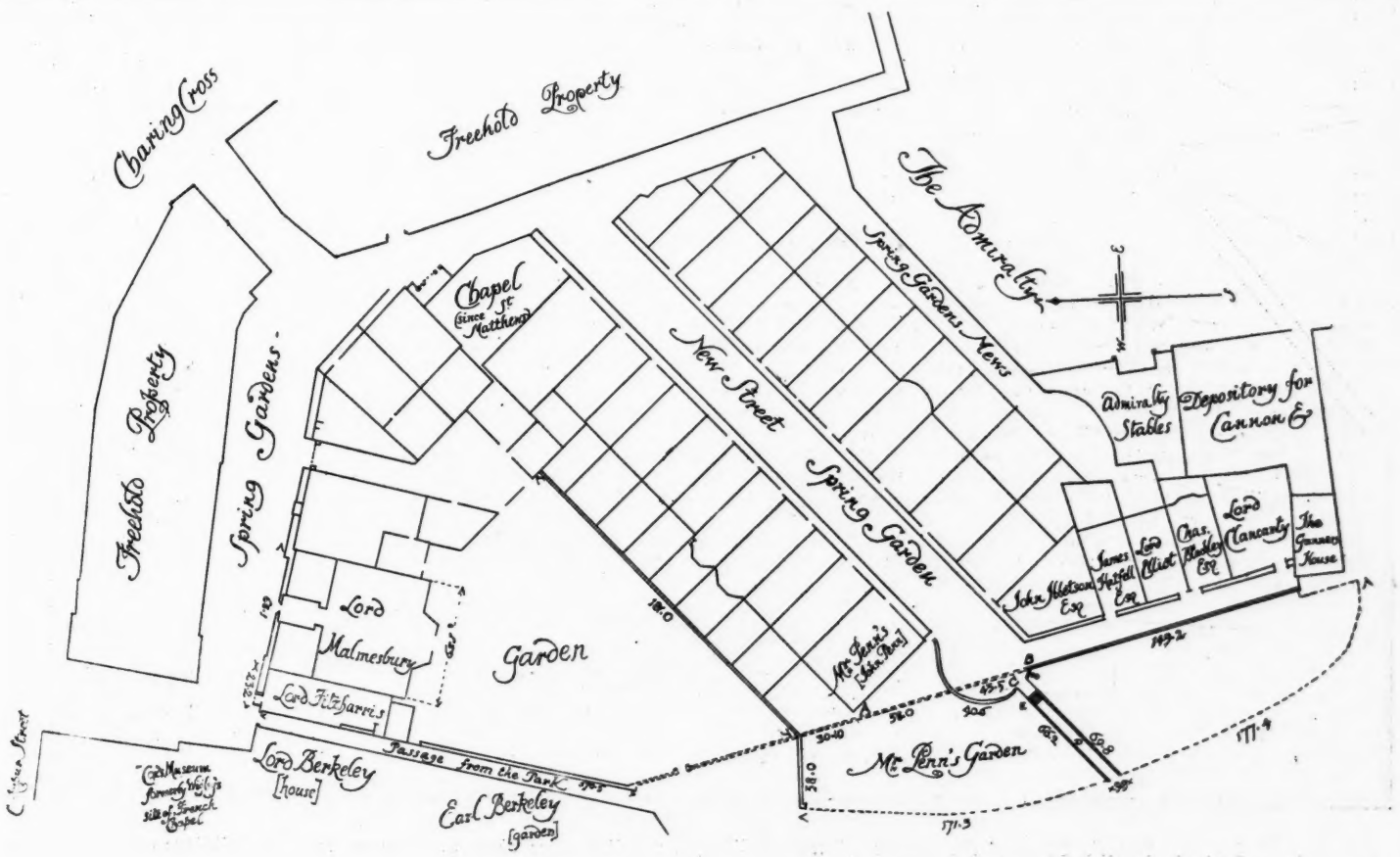


Fig. 1. Spring Gardens, etc.: a Survey by T. Chawner, 1804.

A to B—Old Park wall taken down.
C—Part taken into the street from the Park.
D—New public passage into the Park.
E—Way under this landing.

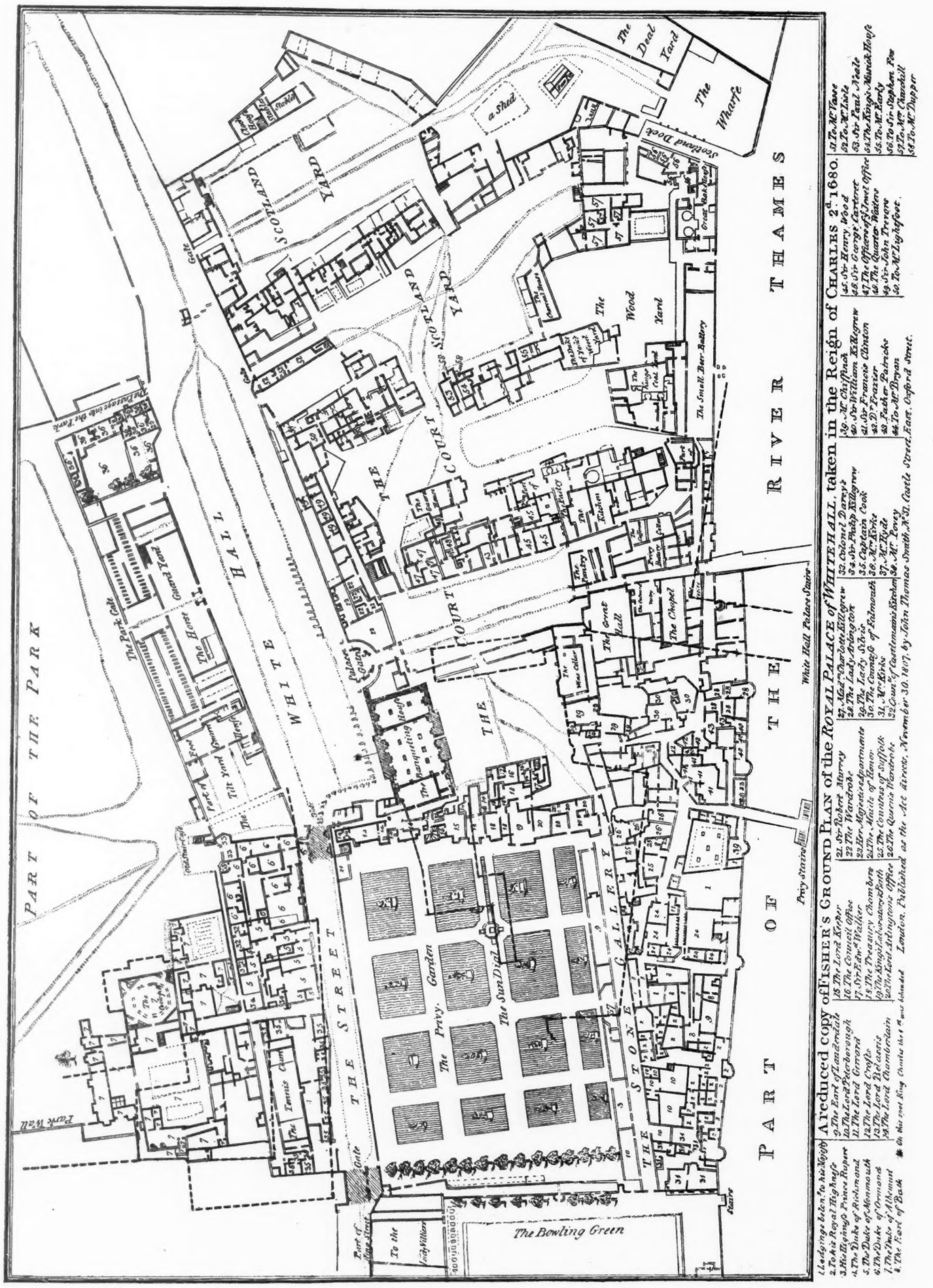

RIVER THAMES
PART OF THE WHITE HALL
PART OF THE PARK
SCOTLAND YARD
THE COURT
THE STREET
THE GALLERY
THE STONE
The Deal Yard
The Wharfe
a Shed
Scotland Dock
The Wood Yard
The Privy Garden
The Sun Dial
The Bowling Green
Park Wall
Gate
Privy Stairs
A reduced copy of FISHER'S GROUND PLAN of the ROYAL PALACE of WHITEHALL, taken in the Reign of CHARLES 2d. 1680.
1. The Lodgings taken by his Majesty
2. To his Royal Highness
3. His Highness's Prince Rupert
4. The Duke of Richmond
5. The Duke of Monmouth
6. The Duke of Ormond
7. The Duke of Albemarl
8. The Earl of Bath
9. The Earl of Lauderdale
10. The Lord Peterborough
11. The Lord Gerrard
12. The Lord Craven
13. The Lord Belasis
14. The Lord Chamberlain
15. The Lord Arlington's Office
16. The Council Office
17. Sr Edw. Walker
18. The Treasury Chambers
19. The Kings Laboratory Both
20. The Queens Wardrobe
21. Sr Robert Murray
22. The Wardrobe
23. Her Majesties Apartments
24. The Maids of Honor
25. The Countess of Suffolk
26. The Queens Presence
27. Mad. Charlotte Ellegrew
28. The Lady Arlington
29. The Countess of Falmouth
30. The Countess of Sandwich
31. Mr. Kirke
32. Colonel Darcy's
33. Sr Philip Ellegrew
34. Captain Cook
35. Mr. Kirke
36. Mr. Hyde
37. Mr. Lovey
38. Mr. Chiffinch
39. Mr. Chiffinch
40. Sr William Ellegrew
41. Sr Francis Clinton
42. Dr. Fraser
43. Father Patricke
44. To Mr. Bryan
45. To Mr. Bryan
46. To Mr. Bryan
47. The Officers of Jewel Office
48. Father Walters
49. Sr John Trevor
50. To Mr. Lyghfoot.
51. To Mr. Vane
52. To Mr. Lisle
53. Sr Paul. Neale
54. The Kings Messengers House
55. To Mr. Hardy
56. To Sr Stephen Fox
57. To Mr. Churchill
58. To Mr. Dupper
59. Mr. Chiffinch
60. Sr William Ellegrew
61. Sr Francis Clinton
62. Dr. Fraser
63. Father Patricke
64. To Mr. Bryan
65. To Mr. Bryan
66. To Mr. Lyghfoot.
* On this east King Charles the 2d was intended London. Published as the Act directs, November 30. 1677. by John Thomas Smith, No. 31, Castle Street East, Oxford Street.

Fig. 2. Fisher's Plan of the Palace of Whitehall. (The dotted lines show the line of modern buildings.)

for it was his father's home in 1838-44, and subsequently his offices. No. 49, Messrs. Drummond's bank [June 28, 1879], was rebuilt in 1879 by Philip C. Hardwick (*ob.* 1892) on the former site of the Bull's Head and Adam and Edward Lockett's taverns; and, we gather, of the house into which Andrew Drummond (*ob.* 1769), the founder of the bank, migrated from his first counting-house, since absorbed in Cox & Co.'s, Craig's-court. In excavating the ground were found an unusual amount of the fossilised remains of extinct mammalia—the cave lion, mammoth, Irish elk, etc., and in the upper deposits the Celtic ox, horse, and sheep. As elsewhere in that quarter the soil presented great difficulties, and the foundations were carried to a depth exceeding 30 ft. On March 22, 1879, we described and illustrated the works, with the use of the pulsometer, the water being heavily charged with sand. The Phœnix Fire and Pelican Life Offices, 1804–5, are by Joseph Michael Gandy (*ob.* 1843); the Union of London and Smiths Bank [April 20, 1872], by F. W. Porter (*ob.* 1901), stands on the site of Nos. 66–7, Farrance's noted confectionery and ice shop. In the winter of 1855–6 Sir G. G. Scott repaired the pedestal of King Charles I.'s statue. He found that fractures in the black marble slab had been pieced with Portland stone, and that the fastenings of three feet of the horse had become insecure by reason of the strain due to the attitude of the horse. Scott inserted a copper chain around the stones of the cornice below a new and thicker slab of granite, securing the latter to the pedestal, and the horse's feet to the slab, with copper bolts. The carving of the pedestal, 1674, by Joshua Marshall, is attributed also, 1680, to Gibbons: the railings have been removed.

(*New*) *Admiralty.*—In his report of August, 1835, upon the Admiralty (by Ripley, 1724–6), Sir James Pennethorne says it rests altogether upon a timber platform or raft laid over a bed of river deposit 6 ft. or 7 ft. thick, which is soft and full of water, and that in consequence it had settled more or less in every part. The site, in fact, is that of the shallow lake, once part of the Thames lagoon, since fed by an effluent of the Ay brook, or Tyburn, and by the tidal estuary of the Merfleet, which, it is said, Dunstan and his engineer-monks embanked and drained. The Admiralty extensions which are now being completed with Block III. (Figs. 3 and 4) are the outcome of the proceedings of a Select Committee appointed in April, 1887. Five years before, a Committee had recommended a larger scheme for new Admiralty and War Offices, involving the demolition of the (old) Admiralty and the Paymaster-General's Office, and the site was obtained for 550,000*l.*, whereof only 150,000*l.* passed to private owners, the remainder being for Crown property [July 8, 1882, official plan]. Nine architects were nominated to compete in 1884; P. C. Hardwick, Ewan Christian, and three Government officials adjudged that the best sets submitted were, in the order named, those by Messrs. Leeming & Leeming, A. Webb & E. I. Bell, and Verity & Hunt [September 6, 13, and 27; and October 4, 1884]. Messrs. Leeming & Leeming's designs were accepted, and as modified by them are illustrated by two drawings in our number of April 4, 1885; the clearance of the site, on the north-west, was begun in February, 1886. The project did not receive general approbation. The Council of the Institute, who, in June, 1882, had addressed a letter to Mr. Shaw-Lefevre, First Commissioner, framed a memorial, and on March 1, 1886, the Earl of Morley received a deputation of the members, who submitted a block plan [March 6, 1886] for using the site with greater advantage. The chief points urged in the memorial related to a redistribution of the "open area" spaces, the setting back of the street frontage without dislodging Messrs. Drummond's bank, and the opening out of the Mall to a width of 100 ft. into Charing Cross. The Government re-considered the whole matter, and their Select Committee of April, 1887, recommended an abandonment of the scheme in favour of extending the Admiralty, and of erecting a separate War Office. The supplementary estimates of August, 1887, included a sum of 8,000*l.* to be paid to Messrs. Leeming & Leeming, "in full satisfaction of their claim . . . in connexion with the preparation of plans for the erection of new offices for the Admiralty and War Departments," and they were then instructed to proceed with the Admiralty extension. The additional buildings were designed by them at first as ⌐-shaped on plan, with a colonnaded screen (since replaced with Block III.) on the south side. Mr. William Webster, contractor for the foundations, began the work in January, 1891, excavating to a depth of 17 ft. over an area 324 ft. by 134 ft. Finding the loose gravel sub-soil above the clay heavily charged with water, he lined the cavity with thick concrete walls and a floor, and covered the faces of the retaining walls with Claridge's asphalt. Block I., completed in July, 1895, cost 190,000*l.*; Block II., into which the Accountant-General's branch moved on August 14, 1900, cost 160,000*l.*; for Block III. 150,000*l.* were voted in 1899. Messrs. J. Chessum & Sons constructed the foundations; the superstructure by Messrs. Holloway Bros. supplants the gallery or covered way, which would have formed a pleasing and unwonted feature of the quadrangle as seen from the parade-ground. It is stated that another block is contemplated, to front Whitehall, and taking in the site of the Paymaster-General's office.

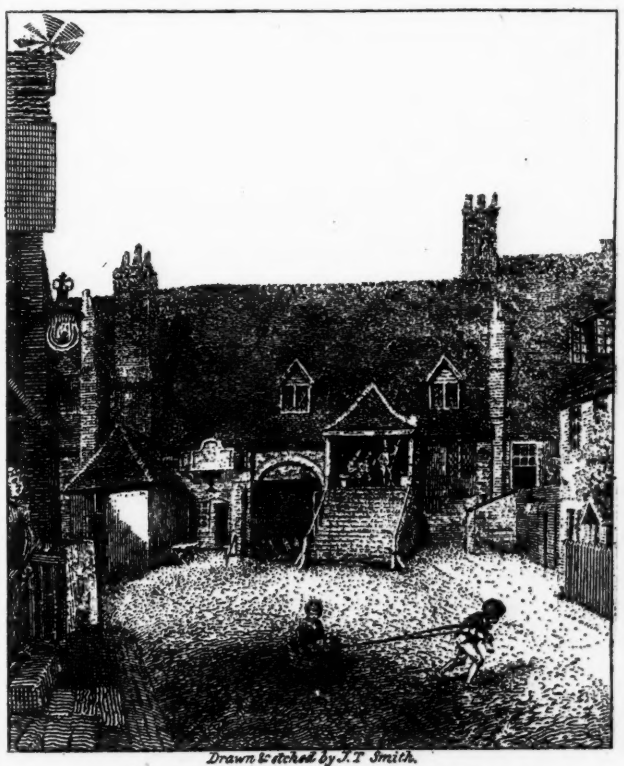
(*New*) *War Office.*—For the block now being erected by Messrs. Foster & Dicksee on the east side of Whitehall, the designs [March 25, 1899, with ground floor and block plans] were made by William Young, who was chosen in July, 1898, out of a list of eight nominated by the Institute. Mr. Young, unhappily, died in November, 1900; the carrying out of his designs has been entrusted to his son and partner, Mr. F. Clyde Young, in association with Sir John Taylor, Consulting Architect and Surveyor for New Public Offices, for the interior arrangements. The site (Figs. 3 and 4) covers about 3¾ acres; Messrs. Foster & Dicksee contracted for 447,000*l.*, and to complete the structure by June 26, 1906. On June 20, 1885, we published a perspective view, especially made for our journal, of Mr. H. B. Garling's submitted designs for the two offices, as they would have appeared on the Park side, and on September 9, 1899, his design for the War Office, adapted to the lines of the official plan: see Foreign Office group, *infra.*

Northumberland-avenue.—The last of the river-side mansions between Whitefriars and Whitehall, and the home of the Howards, the Percys, and the Seymours, was sold by their inheritor, the Duke of Northumberland, to the Board of Works for 500,000*l.*, in June, 1874. Their Charing Cross and Victoria-embankment Approach Act, 1873 (36-7 Vict. c. 100), empowered them to make a new street to the Embankment they had completed three years previously. Henry Howard, Earl of Northampton, built the house in or about 1605; Algernon Percy, tenth earl of Northumberland, rebuilt the southern front and the stone stairs after a design, 1642, ascribed to Inigo Jones. It was the Suffolk House, drawn by Hollar, and the "house with stairs" whence set forth the wedding, sung by Suckling, of Lord Broghill and Margaret, daughter of Theophilus Howard, second Earl of Suffolk. The precise period of the later changes is fixed by two letters written in 1749-50 by Frances, Duchess of Somerset, and communicated to this journal (April 15, 1871) by Wyatt Papworth, which describe all the works, and evince her capabilities in no common degree:—

> "I am attending to all my Lord's designs there. . . My Lord will do a good deal to the front of the house in order to make it appear less like a prison; he builds a new wing on the right-hand side of the garden . . . the staircase is very noble . . . [private and state-rooms, new garden, stables, etc., described]."

The court-yard, of plain Italian character, measured 81 ft. square; the street front, of brick, 162 ft. long (1605) is generally attributed to Bernard Jansen, though he may have been only the builder, the later stone frontal to Gerard Christmas. Papworth cites a fine fo: print of the front, dated February 24, 1752, and lettered "Daniel Garrett, art. J. June, fec." An architect so named flourished at that time. Below the lion were the initial letters of the Duke's name and titles in Latin—"A L G: D: S 1749 C: N: Rest." and "A S" "P N" intertwined. In 1765 Robert Mylne added a pavilion and two wings on the south side; Robert Adam built the great drawing-room in 1774. The picture-gallery and the state staircase formed the chief features of the interior. On the demolition in the autumn of 1874 the lion (its head to the west), modelled in lead by Carter in 1752, was taken to Sion House, Isleworth, and the marble stairs to the late F. R. Leyland's house, No. 49, Prince's-gate, S.W. The avenue, made by J. Mowlem & Co., and opened in March, 1876, is the only road laid out by the Board of Works at a profit, due mainly to the absence of trade interests, and to the eager speculation in the sites; the surplus amounted to 119,819*l.* over a gross outlay of 711,491*l.* The Victoria, until June, 1887, the Northumberland-avenue Hotel [May 1 and November 6 (main entrance porch, carving by Mr. J. Boekbinder), 1886] is by Messrs. Isaacs & Florence, who, to reach a solid foundation for the principal walls, excavated to a depth of 50 ft., and even then were compelled to use a 10-h.-p. engine with pump night and day six or seven months, whilst a 6 ft. concrete bed was laid over the entire area of 32,000 ft. For the Constitutional Club, opened on October 4, 1886, Colonel R. W. Edis adopted terra-cotta and glazed faïence by Mr. J. C. Edwards, for the elevations. He designed all the fittings, and under his directions Mr. Frampton, R.A., modelled most of the outer detailed ornament. Mr. Boyce was the general contractor; the wrought-iron work is by Messrs. Starkie Gardner & Co. The main walls stand upon brick legs or piers on continuous footings at a depth of 40-50 ft., with hoop or bond iron between their courses. The Royal Colonial Institute [November 6, 1886, with three plans] is by Messrs. W. G. Habershon & Fawckner. On November 3, 1879, the Society for Promoting Christian Knowledge moved from Newcastle (or Powis) House, Lincoln's-inn-fields, to the building [October 18, 1879] designed by John Gibson (*ob.* 1892), having bought the freehold for 40,500*l.* Messrs. Kirk & Randall erected the Royal Avenue Theatre in 1881-2, after F. Fowler's plans and designs, using corn-grit and bottom-bed from the Corsham Down quarries for the stone-work. The Board of Works had at the outset required that all the buildings in the avenue should be fronted with Portland stone. The interior of the block at the corner of the avenue and Charing Cross [F. & H. Francis, April 21, 1883] was re-arranged by Mr. F. W. Waller for temporary uses of the National Liberal Club, founded in 1882.

Scotland-yard (*Base-court*) *and Whitehall-place.*—Middle and Little Scotland-yards have disappeared. On the formation of the force in 1829 the headquarters of the Metropolitan



Drawn & Etched by J. T. Smith.

Guard Room Scotland Yard.

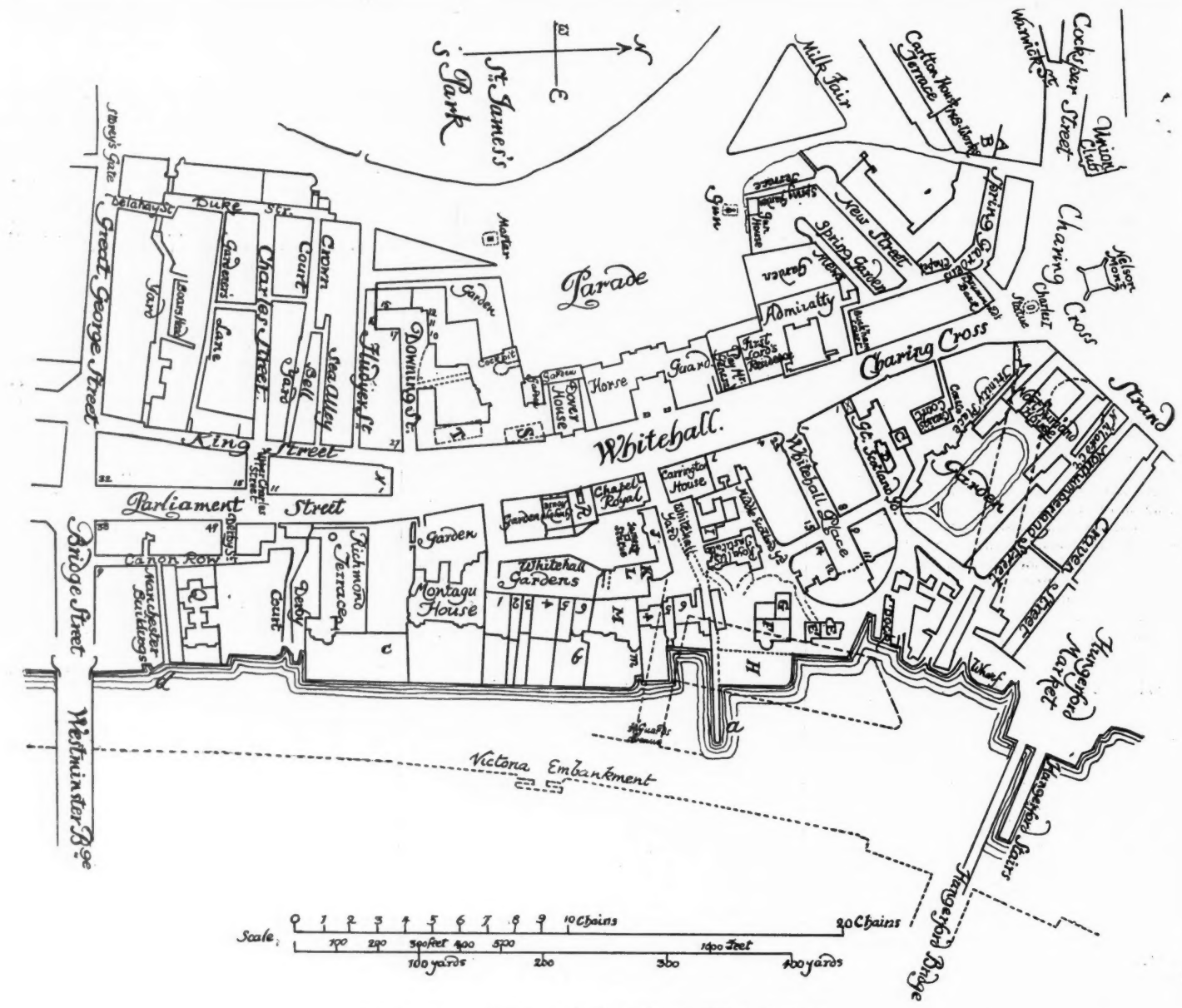


Fig. 3. General Plan: first half of XIXth Century.

A—Site of French Chapel.
B—Berkeley House.
C—Marshalsea Court House.
D—Metropolitan Police, A Division: 1829-90.
E—Queen's Treasury } Palace Beer
E'—Almonry Office } Buttery.
F—Fife House, pulled down in 1869.
G—Little Fife House.
H—Fore-shore reclaimed by Lord Fife.
I—Confectionary: 7, Whitehall-yard.
J—Old Exchequer: 3, Whitehall-yard.
K—Cromwell House (Palace Wine-Cellar).
L—Malmesbury House.
M—Pembroke, or Harrington, House.
m—Boat-house.
N—Board of Trade (Earl of Rochester's).
O—Lord Loudoun's.
P—Duke of Richmond's.
Q—Ordnance and Transport: Board of Control: Civil Service Commissioners (now the Police-station).
R—Dover House Stables (now R.U. Service Institution).
S—"The Old Tennis Court."
T—Long's (Charles II.'s) Tennis Court.
a—Whitehall Stairs.
b—Privy Stairs.
c—Garden Stairs.
d—Manchester Stairs.

Police were established in Great (or Old) Scotland-yard, where until their removal in 1890 to New Scotland-yard, Canon-row, they occupied the detached block and the present Reformatory and Industrial School Inspection Office (D, C, Figs. 3 and 4). The latter building had been the Palace Court, transferred thither from Southwark in 1801. The Court, constituted in 1664 and abolished on December 31, 1849, was served by judges and officers of the ancient Marshalsea Court of the Queen's House, being one of record for actions of debt, damage, trespass, etc., arising within twelve miles—the City excepted—around the sovereign's Palace of Whitehall. The "verge of Court" extended from the corner of Downing-street to the river-side at the end of Northumberland-street, Strand, and in the yards debtors found sanctuary under protection of the Board of Green Cloth. T. Chawner rebuilt the entrance from Whitehall in 1824, carrying the archway up another floor; his coloured drawings of the old and new archways are in the Crace Collection. Chawner's signed plan of August, 1821, is lettered "the newly-erected houses in Whitehall-place," built on Crown leases of ninety-nine years, as a cul-de sac with a garden, of which the rounded wall abutted on Dalgleish & Taylor's coal-wharf by Scotland Dock. The Charing Cross railway bridge obstructs what was one of the finest views in London, with St. Paul's in the distance as seen due east across the low wall. The Woods and Forests Office, and the adjoining house, at one time the Dutch Ambassador's, at the north-west corner, are by William, brother of Robert and James Adam (*ob.* 1822). The east end was opened out into Victoria-embankment (1864-70). Nos. 12-22 have since been pulled down (1899) for the new War Office, the Office of Works removing from Nos. 12-4 to Storey's-gate.

Whitehall-court and Horse Guards and Whitehall avenues.—The Whitehall Court Company's plan [December 5, 1885] closely follows the course recommended in the Thames Embankment Commissioners' Report of 1861; to that circumstance was due, it appears, the co-operation of the Treasury and the Woods and Forests in their undertaking, which involved the demolition of Nos. 8 (Lord Carrington's), 4, 5, and 6, Whitehall-yard. King Edward VII. (then Prince of Wales) opened the two avenues on June 6, 1893. Whitehall Court [January 2, 1886, Archer & Green] contains suites of 7-20 rooms in six blocks, and constructional woodwork was entirely eschewed. Our drawing shows the National Liberal Club, of which Mr. A. Waterhouse, R.A., made some modifications to complete the east façade. The club-house [May 9, 1885, with upper-floor plan] covers 23,750 ft. superficial; a noteworthy feature is the angle-tower which, whilst severely plain in the lower stories increases in richness and intricacy as it detaches itself from the gables on either side.

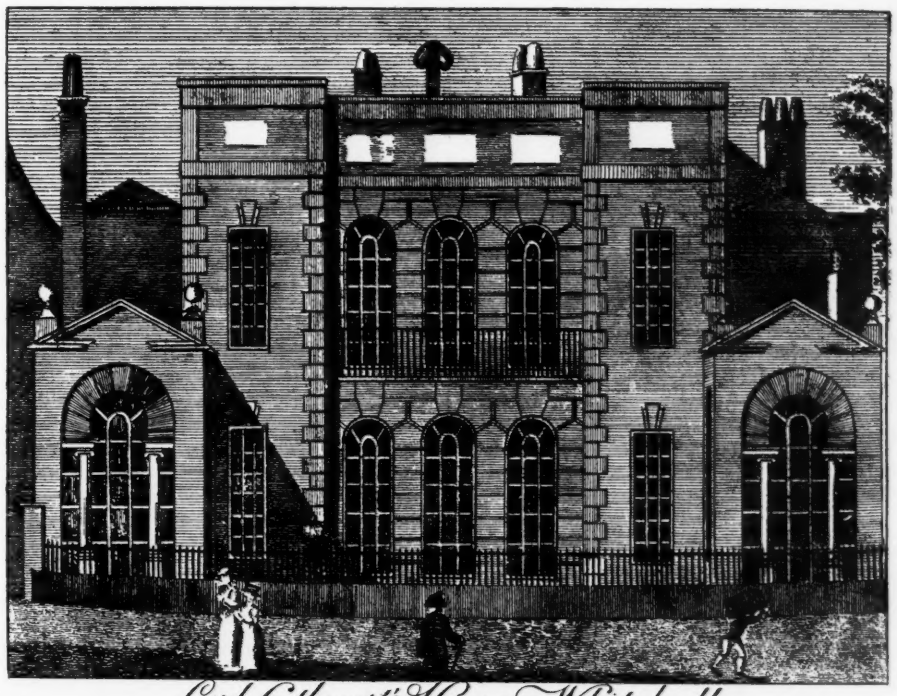
Dover House.—James Paine built Dover House on the site of the Duke of Ormond's lodgings (Figs. 2 and 3) in 1754-8 for Sir Matthew Featherstonehaugh, who died in 1784. Ten years afterwards his son, Sir Henry, or, by another account, Sir Jeffrey Amherst (Lord Amherst) vacated the house in favour of the Duke of York and Albany, for whom Holland added the Ionic portico, domed vestibule, and grand staircase. In 1791 the Duke exchanged York House to Lord Melbourne for the house of the latter—now the Albany—in Piccadilly. The name of Melbourne House occurs in the Blue Book, 1831; the next year occurs the name of Dover House, the lease having passed to G. J. Welbore Agar-Ellis, only son of Viscount Clifden, and first Baron Dover, whose son, Lord Clifden, and the son's widow lived there until 1885. Dover House then became the Scottish Office; a wing was added in 1899 on the south-west. The portico is opposite the site of the King's, or "Holbein's" Gate, pulled down in June, 1750.

"*The Court*" *and Whitehall-yard.*—The outline of present buildings plotted on our reproduction of Fisher's plan (Fig. 2) is made expressly for the *Builder* from a large-scale survey of the Crown property drawn, and signed on April 11, 1881, by the late Arthur Cates, Surveyor of Crown Lands, etc., and with the valuable assistance of Mr. Walter L. Spiers. Surveys and views of the XVIIIth century demonstrate that the fire on January 4-5, 1698, consumed less of the Palace than is commonly supposed. The Court did not return to Whitehall; the Crown leased the vacant sites for

short terms for houses whereof many have in their turn disappeared. Portions of Wolsey's York Place and its successor survived, indeed, to our own day. In the stone-built basement of Cromwell House (K, Fig. 3) (Board of Trade) may be seen four bays, in two aisles, of a Tudor Gothic vaulted crypt; the site is that of the "Wine Cellar" of Fisher's plan. Sydney Smirke's description and measured drawings, January 23, 1832, are in *Archæologia*, Vol. XXV. He ascertained that the floor was 5 ft. 4 in. above the old level. His remark that "it is even now scarcely out of the reach of spring tides," reminds us of the inundations from the Thames and of Lord Dorset's lines :—

"The King, with wonder and surprise,
Will swear the seas grow bold;
Because the tides will higher rise,
Than e'er they did of old:
But let him know, it is our tears
Bring floods of grief to Whitehall stairs."

One of the two shields in the spandrels of the doorway bears per pale the Cardinal's own coat-arms, and those formerly borne by the see of York—a carved boss in the vaulting of Christ Church gate, Canterbury (1517) bears the same charge. In July, 1884, the writer, having for a while the advantage of Mr. Cates's guidance, surveyed the area since covered by Whitehall-court and Horse Guards-avenue. Scattered about the waste and uneven ground, and overgrown with grass and weeds, lay the ruins of Fife House; its gardens were dug up, though some of the elm trees remained, the stables were dismantled, and the gateways in Whitehall and Middle Scotland yards thrown down; the Palace Beer Buttery was being "wrecked." Extending from the end of Whitehall-yard lay the stones of the causeway sloping between two side walls to the public river-stairs (see illustrations II.); the exposed stones of the south wall abutting on No. 6, Whitehall-yard, and of the north wall, still bore green marks of water. Similar traces could be seen on the north face of the abutment wall of the bridge at the return with the original river-wall. An etching by Hollar depicts the wooden bridge, beneath which the river ran at flood, with its abutments and the stone steps or stairs beyond which gave access to the boats (*a*). Laid bare were portions of the lower courses of three massive walls having ashlar on the east face, and set parallel-wise, nearly due north and south, which marked successive embankments of the foreshore. One represented the terrace-wall that extended from the way to the stairs, past the Beer Buttery, and so to the Great Bake House and Scotland Dock; nearer to the river lay a long piece of the later wall which embanked Fife House garden. "The Corte" (since Whitehall-yard) and "Beere House" are plotted in Hoefnagel's bird's-eye map of London made in, or before, 1561 (since it shows the spire of St. Paul's), for Braun and Hogenburg's "Civitates Orbis Terrarum," 1573-1618. A water-gate in the Beer House or Buttery (illustration) gave access from York (or Palace) place and Scotland-yard to the terrace; it was subsequently sub-divided for uses of the Queens of England. The north portion, the Queen's Treasury (E), was assigned to George II.'s wife, Caroline, and the consorts of his successors; the south portion (since 1820 the Royal Almonry, E[1]) became the treasury-house of Augusta, Princess-Dowager of Wales, and in 1805 passed to Queen Charlotte: Queen Adelaide there dispensed her benevolence. The business of the Royal Almonry was transferred to No. 36, Spring-gardens, and thence, in 1891, to No. 6, Craig's-court. Between the wine-cellar and the public stairs stood Wolsey's Great Hall, and the Chapel with two vestries, afterwards the site of No. 6, Whitehall-yard (Army Medical Department) and its garden, the way to the stairs descending between an archway under that house, and skirting the garden. Nos. 4 (Lord Gage's), 5, and 6, Whitehall-yard gave way to Horse Guards-avenue, which traverses the sites of the Great Hall, Chapel, and, at the old river-wall, the Privy Kitchen and the Master Cook's. In 1764 James, second Earl of Fife, leased a site at the east end of the yard, plotted by Fisher as the Pantry, Privy Buttery, and part of the Pastry, and adding, in 1769, the site of the Kitchen and the Small Beer Cellar of Hollar's print No. IV., built a house of stone and red brick having three stories and no basement (F). Before he made his first embankment, barges discharged the house coal into the cellars at high tide. In 1772, Lord Fife employed Thomas Yeoman, engineer, to make a survey for embanking the foreshore, northwards, from Whitehall-stairs;



Lord Cathcart's House, Whitehall.

for his second embankment (H), on which he built a high wall, he reclaimed an area of about 85 ft. by 200 ft. On February 4, 1803, he writes to the Society of Arts, who had awarded their gold medal to him for his arboriculture in North Britain :—

"Fife House, Whitehall, is a Crown lease. I have made two different embankments, which in the building have cost me many thousand pounds. The first embankment was made about five years after my entry on the lease, and the other twelve years after; they were made at a great expense. All the trees and shrubs planted in those embankments, as also the stones, were brought from my estates in Scotland . . . some of the elms planted in the first embankment measure 3 ft. 4 in. in girth, and above 50 ft. high.

The deportation of Scottish soil, etc., revived the associations of that quarter with the palace inhabited by the Kings of Scotland when they came to our Parliaments. Lord Fife died in 1809, his executors sold the lease to Lord Liverpool, the statesman, who resided there 1812-27. His niece and co-heiress, Selina, Viscountess Milton, married G. Savile Foljambe, who, in 1860-4, let most of the house for the India Museum; the property reverted to the Crown in 1868, and in May, 1869, Fife House and the adjacent Little Fife House (G) were pulled down. Lord Carrington gave the gates to the Duke of Fife for his residence at East Sheen, a part of the staircase was removed to the Museum at South Kensington. Next, south-west, stood on the north side of Whitehall-yard the house—the "goose-pie" of Swift's satirical lines—which Sir John Vanbrugh built for himself in 1722-3 out of the ruins of the Palace, and wherein he died on March 26, 1725-6, and his widow, Henrietta Maria, in 1776 (see illustrations I., "Lord Cathcart's"). In 1793 General the Hon. Charles Stuart bought the lease, which passed to his son, Baron Stuart de Rothesay who shortly before his death in 1845 sold his interest to the Committee of the Naval and Military Library and Museum (1830). That body, incorporated in 1860 as the Royal United Service Institution, vacated the house in February, 1895, taking many of the fittings, fireplaces, etc., good specimens of their time, to their new quarters in Whitehall. The materials were sold on August 4, 1897; the sale being the first that was held to clear the site for the new War Office. On the west side of the passage into Middle Scotland-yard stood No. 7, Whitehall-yard, the offices of Arthur Cates, which embodied portions of the Confectionary (I); opposite are the old buildings of the Exchequer Office, now No. 8, Whitehall-gardens. The lease of Carrington House [August 9, 1884, dining-room and staircase], built of brick with stone dressings, after the Palladian manner, on the site of the Palace Wardrobe, in 1764-70, by Sir William Chambers (*ob.* 1796) for George, second Earl Gower and first Marquis of Stafford, was bought in 1810 by Robert Smith, first Lord Carrington, and remained in his family until the demolition of the house in 1886, when were found a number of elm piles, with remains of the Palace gate and the road through the great court. In 1885 Colonel Seddon, R.E., had made plans for raising the house and moving it northwards.

Whitehall-gardens.—In 1806 was begun the block of six houses (with gardens reaching to the later river-side) on the site of the apartments of the Earl of Bath, the Maids of Honour, and the Countess of Suffolk, part of His Majesty's lodgings, Mr. Chiffinch's rooms, and the Queen's wardrobe. No. 4 was built in or about 1824 by Sir Robert Smirke for Sir Robert Peel, who there collected the Dutch, Flemish, and English pictures and portrait busts, catalogued in the *Art Union* of 1846, of which some are in the National Gallery and others were dispersed at auction in 1900. Peel died in the dining-room, on the ground-floor, on July 2, 1850. The leases of Nos. 4, 5, 6 expire on August 2, 1923. On the site of No. 6 stood, until 1805-6, the residence of the Duchess Dowager of Portland (see illustrations I.), at the sale of whose museum in April, 1786, the Barberini, or Portland, vase, the last lot in the sale, realised 1,029*l.* The house occupied a site taken in or about 1696 by the Earl of Portland, and lying between the Stone Gallery and Queen Mary II.'s "terras walk" or "little garden" which absorbed the Privy Stairs (*b*). No. 7 marks the situation of the lodgings of Lady Silvis, Sir F. Clinton, Dr. Frazier, Father Patrick, Lady Arlington, the Countess of Falmouth, Queen's Waiters, and Pages of the backstairs. No. 7 now includes Malmesbury House (L), having only two floors; Cromwell House (already cited), next north; Sir John Pulesston's; and Pembroke, or Harrington, House to the east (M). The group is entered through the old coachhouse and its door of the last-named house. A covered passage between the stables leads to the narrow doorway set in rustic-work of the house built by Colin Campbell, and drawn in his "Vitruvius Britannicus," for Lord Herbert, afterwards Earl of Pembroke and Montgomery, who in 1744 procured a new lease and took in part of Queen Mary's terrace. The front elevation, now concealed from view, has an Ionic tetrastyle order with pediment on the first floor. The former limits of the site may be traced in the garden, where is the old boathouse (*m*) entered from a passage in the basement. In 1838 Charles, fourth Earl of Harrington, the eccentric Lord Petersham of the Regency, took a sub-lease from Robert, Earl of Pembroke, and in 1843 enlarged the house on the south side. Having formed the War Office in 1855-9, the time of the Crimean War and Indian Mutiny, No. 7 next became the Foreign Office; in 1865-6 the Board of Trade migrated thither from Treasury-buildings. The late Renaissance decorations of Harrington House extend to the door-frames, walls, and ceilings; the principal rooms have mahogany double-doors, the main stairs have a handsomely wrought-iron balustrade. Malmesbury House, leased in 1788 to

James Harris, the diplomatist, and first Earl of Malmesbury, was built in or about 1725 on the site of the "organ-builders' workhouse"—the workshop of Bernard Schmidt "organ-maker in ordinary to King Charles II.," who there built the organ for the Chapel Royal, and of his son-in-law and successor, Christopher Schreider. No. 8 (Board of Trade) was the old Exchequer Office, No. 3, Whitehall-yard (J). Montagu House, projecting into Privy-garden, covers the sites of the south end of the Stone Gallery, and the apartments of the Earl of Bath, Earl of Lauderdale, Duke of York, Prince Rupert, Lord Peterborough, and Mrs. Kirk. The former mansion, pulled down in 1859, was built in 1733 for John, second Duke of Montagu, whose grand-daughter Elizabeth brought it in marriage, 1767, to Henry, third Duke of Buccleuch. The ninety-nine years' Crown lease of the present house, built in 1859-60, after designs by William Burn (*ob.* 1870) for the fifth Duke, expires in 1954.

Banqueting House, and R. U. S. Institution.—James Wyatt (*ob.* 1813) added the annexe for the staircase and vestibule in 1798. The exterior stone-work had fallen into decay as early as the time of Pope—

> "Shall half the new-built churches round thee fall?
> Make quays, build bridges, or repair Whitehall."
> —*Satire II.**

* *Confer* also—
"See under Ripley rise a new Whitehall,
Whilst Jones' and Boyle's united labours fall."
—*Dunciad III.*

and in 1829-37 Soane re-cased it, Sir Robert Smirke restoring and refitting the interior, at a cost of some 15,000*l.* Smirke took down the Guards' gallery and closed in the middle row of windows with oak panelling which was used in the conversion of the Chapel Royal into the Royal United Service Institution Museum in 1891, when the brick vaulting of the lower floor was plastered and its windows, for the first time, opened out. Dover House stables (R), next adjoining, were built after 1796, and before 1810 on the site of the Lord Chamberlain's and the Lord Keeper's rooms. In June, 1892, the R.U.S. Institution accepted from the Treasury an offer of an eighty years' building lease of the ground at a rent of 350*l.* for the first year and 580*l.* for the remaining period. Messrs. Mowlem & Co. erected the new buildings [May 13, and September 16, 1893, three views and two plans], after designs by Sir Aston Webb, R.A., and Mr. E. Ingress Bell. The task was a difficult one: in their solicitude to leave unimpaired the "solemn state" of Jones's work, the architects set back the two elevations and inserted a plain break between the two portions of what is now practically one building. Some may think that their façades effect too great a contrast. Still, the area is confined, whilst a lecture-theatre, a large library, with many rooms, and communications on different levels with the museum were required. Gwydyr House, built in 1795-6 by John Marquand, Surveyor to the Woods and Forests, for the first Lord Gwydyr, formed the first home, in 1832-40, of the Reform Club, and has since been occupied by the Poor Law, now the Local Government, Board (about 1865), the Charity Commissioners (1876), and the Board of Education (1893). In 1884-5 the attics were converted into a top-floor; an addition made on the south side in 1898 projects into the Privy-garden on to the site of the dial (Fig. 2) constructed by Edmund Gunter for Prince Charles. Nicholas Stone made the pedestal; in his MS. "account book" he enters:

> "And in 1622 I mad the greet diall in the privy garden att Whit Hall for the wich I had 46*l.*"

Chawner built Richmond-terrace and the stables in 1824-5 on the site of the houses of Lord Loudoun and the Duke of Richmond four years after the Duke had sold his twenty-one years' interest in the property for 4,300*l.* The first Duke procured a lease in 1711 of the site on the Bowling-green of his mother the Duchess of Portsmouth's lodgings. Lord Burlington built the house, facing northwards, for his successor, whose son added in 1758 a gallery of casts from the antique, which, with unwonted liberality, he opened to students; see the *Chronicle* of February 2, 1758. In or about 1778 the Duke rebuilt that portion which abutted on the river-wall, surmounting a bastion, and is delineated in Canaletti's picture. James Wyatt reconstructed the mansion after the destruction of the gallery and other parts by fire on December 21, 1791 (P). In the Gardner collection is Capon's drawing of Loudoun House (O), which stood to the west of the Duke of Richmond's; it had been built *temp.* James II. on the Bowling-green, and having been subdivided and inhabited by the Earls of Mar and of Loudoun, was bought by the third Duke of Richmond. Chawner's drawing, 1827, of the elevation of Richmond-terrace, 253 ft. 6 in. long, is in the Crace Collection.

The Government Offices.—That history really begins in 1809 when John Adey Repton (*ob.* 1860), being then thirty-four years of age, won the first premium with his designs for public buildings on what is now the site of Parliament-square. The entire story comprises many episodes which need not be rehearsed after the lapse of years. They will be found in volume after volume of reports, evidence, projects, and plans—testifying to the procrastination, near-sighted, albeit wasteful, economy, departmental jealousies, and partisanship of the government and their non-professional advisers. We will repeat no more than we cannot help in order to render our epitome intelligible. For the block of offices northwards from Downing-street, Soane pulled down Nos. 1-9 on the north side of that street, and the adjacent tennis court (Fig. 2). Captain Cooke, master of the King's tennis courts, and Robert Long, the King's marker, built the court (T, Fig. 3), after the model of that at Hampton Court, for Charles II. in 1662-3, over Lord Sandwich's garden, on a parcel of land called the Brake. In the Pells Dormant Privy Seal Posting Book, vol. v., fo. 73d., we find:—

> "5 Sept., 1604. To Mr. Kyrwyn towards the repayre of the Tennis Court commonly called the Brake at Whitehall: 200*l.*"

"Long's" is mentioned in Shadwell's "True Widow," 1679. The "Long Gallery next the brake," the "Close tennis court," and the "Little tennis court" are named in a bill for repairs belonging to a series of accounts relating to public works and buildings, 1600-1, preserved in the Record Office. Soane pulled down also the houses facing Whitehall, of which he made a coloured drawing, whereof, by the courtesy of Mr. Walter L. Spiers, curator of the Soane Museum, we give an illustration. At that time, 1824, those houses were occupied by the Board of Trade and Plantations, and the India Board of Control: *confer* Marquand & Leverton's plan of 1804. Between them and Dover House stood the much older building, to which we will revert as the "Old Tennis-court" (S), whereof the west wall is incorporated in the more modern work. Soane's first designs presented front and return elevations relieved and elaborated with a continuous colonnade and a more diversified parapet; his model, in the Soane Museum, embraces a bolder and larger treatment of the north end of the block and a corresponding block to extend southwards from Downing-street, with a triumphal arch across that street to connect the two blocks. He intended that the arch should be adorned with sculpture and to erect a similar arch opening into the Park from the remoter end of Downing-street, the two to stand across a processional road to the Houses of Parliament. Soane's building, 1824-8 (see illustrations II.),

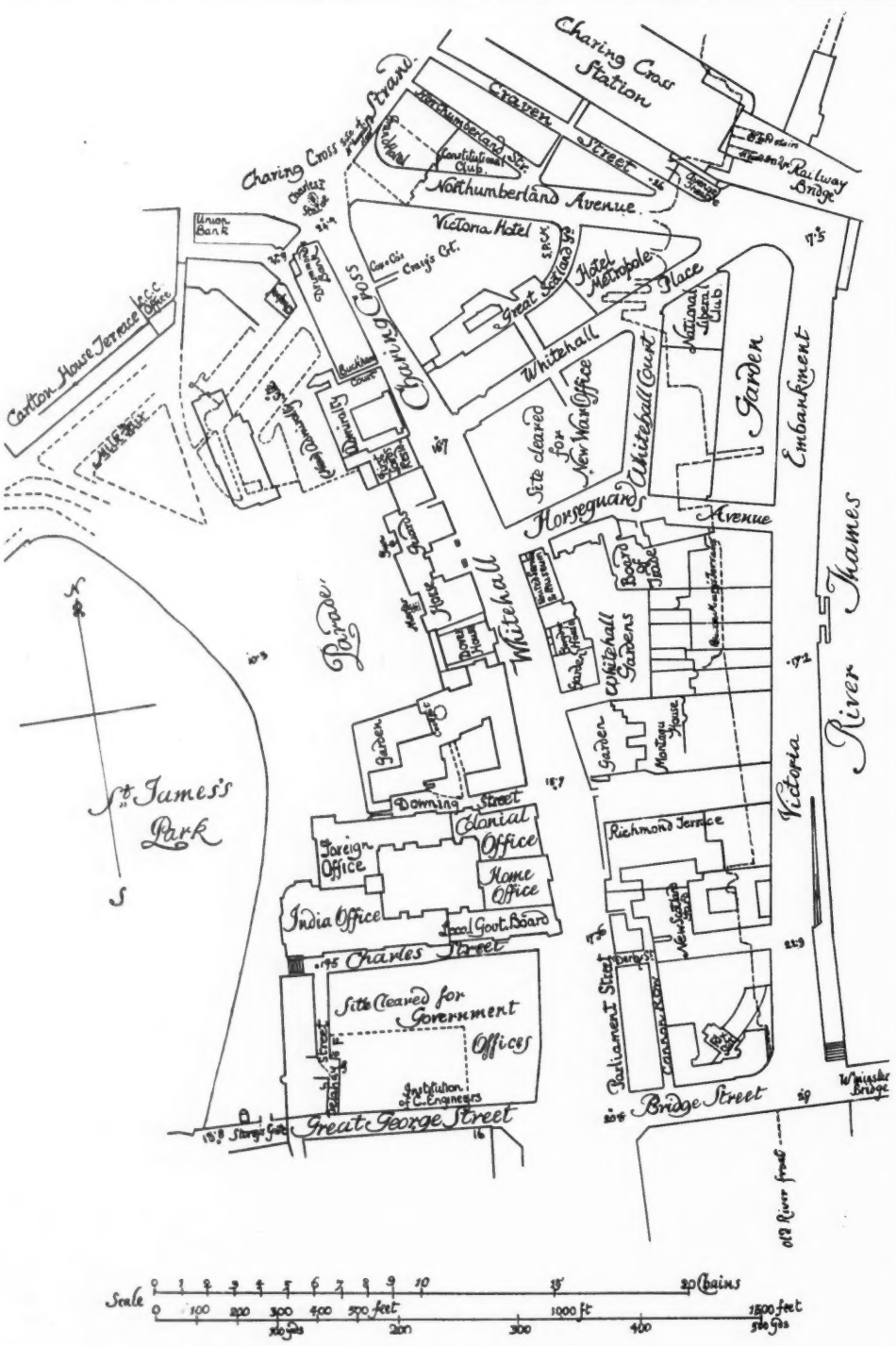


Fig. 4. General Plan: latter half of XIXth Century.

provided for the Privy Council, Board of Trade, and, in the rear, the Exchequer. The foundations were built up of a lowest stratum of broken granite and Kentish rag closely rammed, to a depth of 3 in., with three similar layers grouted with strong Dorking lime and sand, and an upper series of 6 in. of York landings bedded solid in mortar. The south portion, 1825, comprises the Privy Council Chamber and the Board Room, the former having a coved ceiling divided into four compartments with lantern lights and two Scagliola columns carrying an ornamented entablature at the two sides; the latter, on the west side of the middle corridor, for the Board of Trade, he decorated after the same style, using some ornamentation from the former Board Room on that site. He also made additions to No. 10, Downing-street.

In 1846-7 a good piece of work was liberally done. Barry replaced Soane's colonnades at the south end and its return with pilasters and half-engaged columns; he added a second floor, and, lifting the columns by 13½ ft. on projecting piers, carried them up to the top of that floor, with breaks in the embellished entablature. He increased the height of the first-floor windows and inserted the balconies; greatly improved the horizontal and plank-like rustication; rearranged the top story; added the two attics which give *embonpoint* to the design, inserting between them, on the topmost line of Soane's front, a new balustrade; and, crowning the whole composition with acroteria and urns, enriched all the detail. He raised the general height from 54 ft. to 56½ ft., and to 67½ ft. at the ends; the north pavilion and the next two bays, for the Home Office, extended the front by 94 ft. as far as Dover House. The Board of Education succeeded the Board of Trade in 1865; the Treasury abides in its pristine quarters, the door and passage beyond through what remains of Stanhope, since Dorset, House mark the old way into the Cock Pit, which is embodied in the Treasury block, built by Kent in 1742-3. Of Kent's complete design [July 25, 1857, north front] only the middle portion, having seven of the fifteen windows in each row, was erected.

Of the Tudor building which we illustrate after a tinted and measured drawing, 1809, by Chawner, the story is somewhat obscured. Though a popular writer calls it Wolsey's Treasury, there is no certainty that any part of the Cardinal's York Place lay on that side of the street. Stow says:—

"On the right hand [from Charing-cross] be divers fair tennis courts, bowling-alleys, and a cock-pit, all built by King Henry VIII., and then one other arched gate with a way over it thwarting the street from the King's garden to the said park [the south gate in King-street]."

Whether the structure was built for a tennis-court appears to be very doubtful too. Yet it is so named in state and other papers *temp.* Charles II., and with its four high turrets forms a conspicuous feature in many XVIIth and XVIIIth century views. For instance, in the Harl. MSS. 1618, fo. 224, is an entry June, 1664, of "charges in doing divers works in making lodgings in the old Tennis Court at Whitehall for the Duke of Monmouth." In the "Calendar of State Papers" (Domestic Series), vol. 136, November 1, 1665, is cited a "warrant to pay to Hugh May paymaster of the Works . . . 300*l.* for repairs of the Duke of Monmouth's lodgings in the Tennis Court near Westminster," and from the same source we learn the payment was passed under the Privy Seal on October 31 of that year—the Duke's lodgings being described as "at the Cockpit." Fisher's plan enables us to exactly identify the "Old Tennis Court" with the building drawn by Chawner; for it plots the Duke of Monmouth's lodgings between the Duke of Ormond's (site of Dover House) and the passage to the Cockpit. J. Carter, the "Antiquary" of the *Gentleman's Magazine*, who compiled a record of occurrences he witnessed, relates that in 1816 he saw the flint and stone masonry—the ground floor excepted—of the old tennis-court being covered with brick, and the splays of the buttresses increased from two to five; he describes it as the office of the Home Secretary, of late called the Treasury. He chronicles the substitution, thirty-five years before, of conical caps for the spires of the turrets, and the subsequent insertion of the pseudo-Tudor doorway; the other entrance, bearing a crown and "C.R.," having been made *temp.* Charles II. In that reign, it seems, the Perpendicular windows were blocked in, and two rows of smaller windows made, when the interior was divided into floors to adapt it for residential uses. An ill-considered tale has lately been revived that the block masks a portion of Wolsey's palace, and that Soane and Barry encased the buttresses with the columns of the façade. Neither of them did anything of the kind; Soane left the old building as he found it, Barry pulled down its east wall. For in our columns of January 11, 1845, we announced that Barry had been deputed to examine the buildings occupied by the Board of Trade with a view to providing increased accommodation, and that:—

"It is also in contemplation to pull down the old building at present occupied by the department of the Home Secretary of State which has long disfigured that portion of Whitehall, and to erect a more sightly structure in conformity with the new front of the Board of Trade."

Moreover, in the course of debate in the House on May 26, 1846, on a vote of 19,235*l.*, for taking down and rebuilding the Home, Board of Trade, and Council Offices, Sir Robert Peel said that the projection of the face of the new building beyond the front of Lord Dover's house would be so slight as not to spoil the general effect. Soane's trial and perfected plans show that his building and the old tennis-court were not in alignment. Barry pulled down the east wall of the latter, and anyone may see to-day the extent of the advance he made beyond Dover House, together with the fact that the fronts of Dover House and Barry's wing are not parallel (Figs. 2, 3, and 4). The west wall of the old tennis-court remains in Barry's block—see the large-scale Ordnance Survey. J. T. Smith's view of 1804 depicts the original windows and the buttresses on that side.*

Home, Colonial, India, and Foreign Offices.—A Select Committee reported adversely in 1839 upon the eight houses in Downing-street occupied by the Foreign and Colonial Departments. The project to build on the ground between Downing and Charles streets assumed a final shape during Lord Palmerston's premiership. In September, 1856, instructions were issued to 1,628 architects at home and abroad who had asked for them or accepted invitations to compete. Nearly 2,000 drawings and models, sent in by 188 British and 30 foreign architects, were exhibited in Westminster Hall, in May, 1857. The Duke of Buccleuch, Lord Stanhope, Lord Eversley, and Messrs. Stirling, Roberts, Brunel, and Wm. Burn, the judges, enlisted the aid of Angell & Pownall. They assigned premiums to eighteen in three classes: (*a*) block plan to show how the site between Whitehall, Great George-street and New Palace-yard, St. James's Park, and the Thames could be so appropriated that the new Foreign and War Offices might form part of a large and comprehensive scheme for concentrating the principal public offices; (*b*) Foreign Office with Secretary of State's residence; and (*c*) War Office. They awarded premiums to (*a*) M. Crepinet, of Paris (500*l.*): (*b*) Coe & Hofland (800*l.*); Banks & Barry (500*l.*); G. G. Scott (300*l.*); (*c*) H. B. Garling (800*l.*); M. D'Hazeville, Paris (500*l.*); and others. We illustrated in our volume for 1857 the premiated designs submitted by H. E. Coe & H. H. Hofland; Mr. H. B. Garling (Italian); Banks & Barry (late Italian); Prichard & Seddon, of Llandaff (*c*) (Gothic); Scott (Gothic); and Deane & Woodward, of Dublin (*a*) (Gothic); and the unpremiated designs by Mr. Garling, and Prichard & Seddon, of Llandaff (*b*); and Scott (*c*). In our volume for 1859 we illustrated Scott's amended plans and designs, Gothic, for the Foreign Office [August 13 and September 10]. Lord Palmerston cherished an aversion from the Gothic style. So, a new War Office being for a while set aside, Scott was instructed to make fresh designs for the Foreign and India Offices and the Home and Colonial Offices. Sir Matthew Digby Wyatt (*ob.* 1877), architect to the India Office, was deputed to act conjointly with Scott for the interior of the India Office. Wyatt designed the inner court and the museum of the India Office; Scott designed and planned the Foreign Office throughout. Smith & Taylor began the Foreign and India Offices [July 14, 1866] in 1863, and completed the building in 1867. The Colonial and Home Offices [June 20, 1874, middle portion and first floor plan] were begun in 1870, five years after Lord Palmerston's death. The demolished houses included Fludyer-street, Nos. 1-14, Parliament-street, and the old Colonial and Foreign Offices in Downing-street (see illustrations I.). The unfinished work near the steps which were then made to the Parade indicates the intention to carry the composition across Downing-street, and to absorb the buildings and garden near Treasury Chambers; but No. 10 is to be preserved for the sake of its historical associations as the official residence of Walpole and successive Prime Ministers. Jackson & Shaw contracted for the Colonial and Home Offices, extending 317 ft. along Whitehall, for 250,000*l.*, and finished the work in 1875. Besides shearing, it is said, some 100,000*l.* off Scott's intended outlay, the Office of Works countermanded the two towers which he meant to erect at the advanced ends of the Whitehall façade, as well as the figures on the balustrade. The sculpture in the spandrels of the ground-story arches is by Mr. Armstead, R.A., and Mr. Birnie Philip, the five "quarters" of the globe being by the former. About eight years ago the Office of Works accepted Mr. J. Oldrid Scott's designs for completing the tower on the Park front. To complete the tale we should add that the demolition of King-street (the old highway to Westminster) and of the west side, Nos. 15-31, of Parliament-street, was begun in November, 1897, for clearing the Great George-street site (Figs. 3 and 4), at a cost to the Office of Works of 405,000*l.*, including 100,000*l.*, the value of land owned by them and appertaining to the Westminster Bridge Estate. Of the eight architects recommended by the Institute, the Government, in July, 1898, appointed the late J. M. Brydon, who unhappily died in May, 1901, before he had completed the drawings. The Office of Works took over the building, with the interior arrangements; Messrs. Spencer, Santo, & Co. contracted to finish the structure at a cost of some 473,000*l.*, by June 1, 1907 [March 25, 1899, east front and ground-floor plan; May 5, 1900, circular court]. The east front is 315 ft., the Charles-street front is 675 ft., long. The Select Committee's final report of July 22, 1897, appropriates the block to the Board of Education, the Local Government Board (extension), and, perhaps, the Board of Trade, and recommends that any further room required should be provided for by an extension on the Delahay-street and Park sides. That would involve the pulling down of the Institution of Civil Engineers [June 22, 1895; and October 17, 1904, the hall], rebuilt by Messrs. Mowlem & Co. after designs by Charles Barry (*ob.* 1900). Thus the groups scattered on either hand between Charing-cross and Parliament-square speak eloquently enough of the unfortunate circumstances under which successive Ministries rejected Sir Charles Barry's scheme for a gradual construction of our public offices in immediate connexion with one another, and as parts of one great architectural whole which might have rivalled Inigo Jones's designs for the Palace of Whitehall.

SOME NOTABILIA.

Plans, drawings, and views.—Whitehall: Inigo Jones's complete designs [October 26, 1901; January 17, 1903]; Mr. W. R. Davidson's and Mr. G. T. Smith's drawings [January 18, 1886; December 22, 1900]. P. Sandby, old tennis court, Holbein's gate, etc.—in the Gardner Collection. Privy Garden, prints by Maurer, 1741; and J. Boydell, 1751. Fife House, the "Crowle" Pennant and King's Library. British Museum. Vanbrugh's House, by C. J. Richardson, 1806, in Vict. and Alb. Mus., York (Dover) House, by Miller, 1796. Lord Keeper's (Dover House stables), Miller, 1796, and east front probably by P. Sandby, in Soane Mus. Horse Guards, Mr. A. H. Christie's measured drawings [February 22, 1896]. Northumberland House, south front, S. Wale, 1766 (rare). A singular drawing taken in 1807 by J. T. Smith from the roof of the Banqueting House shows King and Parliament streets, the Board of Trade (N, Fig. 3: formerly Lord Rochester's) at the angle of those streets, Montagu House, Loudoun House, etc.; confer the official plan, 1734-48, of the Westminster Bridge Commissioners. See also the Crace Collection.

Our illustration "Scotland-yard" is after P. Sandby's view of Whitehall-yard, 1766, engraved by Rooker, whose original plate was wrongly lettered, and we did not detect the error in time. On that and other points J. G. Crace's catalogue of his father's Collection needs revision.

Wigley's Great Room—Society of Artists, until 1771; and in 1780-2. Cox's Museum—"The Rivals," 1775; "Evelina"; 56 exhibits, valued at 197,500*l.* Grand Hotel—banquet, reception, and reading-rooms, 1899—Mr. A. Waterhouse: leaden bridge across Northumberland-street—Mr. W. Woodward. Ship Hotel, site of the Rummer. *Middle Scotland-yard*—1, (Almonry), Thomas Campbell, 1829-30. For the coal-heavers and the Rising Sun, with G. Cruikshank's etching, "Sketches by Boz." Fire Brigade station, A. Mott of M.B.W., 1883. Milton, Beau Feilding, Inigo Jones, Denham and Wren, as Surveyors General. 1, Whitehall, by Adam, 1771, refitted for the Paymaster-General and Chelsea Hospital Commissioners; latterly a branch of the Board of Trade. *Charing Cross.*—Underground convenience, the first we

* In his "Annals of Tennis," 1878, Mr. Julian Marshall testifies that the tennis-court at Whitehall ceases to be named in the grants of the office of Master of the Tennis Courts, in the grant of that office made in February, 1816, to Major Beresford.

believe in London [July 25, 1891]—Mr. C. Mason, C.E. *Spring-gardens.*—Plane trees cut down, winter, 1895-6; historical notices, *Builder*, November 17, 1883; March 21, 1896. Hotel Métropole, 1883-5—F. and H. Francis and J. E. Saunders: "London" by Mr. H. H. Armstead.

Palace.—The Fire, 1698: A Kineir writes on January 5, 1698, to Lord Marchmont:—"All the royal apartments with the King's chapell and gward hall, the Duke of Shrewsbury's office, the Treasury Office, Council Chamber, the late King's new chapell, the long gallerys, with Devonshire's, Essex's, and Villar's and several other lodgings are all consumed. . . . The best account we yet have of the occasion of it was the neglect of a lawndress in Colonel Stanley's lodgings near the river. . . ." Seafield Papers, Hist. M.SS. Commission, 1894. Chapel Royal and Banqueting House: organ by Schmidt, 1662, altered in 1814, and in 1844 by Hill who added a swell organ and a solo organ on a fourth row of keys, leaving the original oak case and some pipes: given by Queen Victoria to St. Peter's in the Tower. Sir G. G. Scott restored the reredos in alabaster.

Whitehall-gardens.—2, Lord Beaconsfield in and after 1873. Statue of James II. taken in August, 1897, from its original place in Whitehall-gardens to the Privy garden, dislodged in 1902, and removed to the Park in front of the (new) Admiralty. *Richmond-terrace*—2, Countess Dowager of Harrington (Miss Foote), *ob.* December 27, 1867; and Sir H. M. Stanley, *ob.* 1904. 8, Tom Taylor. Nos. 4-5, thrown into one, and new stairs, F. C. Penrose [April 21, 1903]. *Parliament-street*—made under 29 Geo. II., c. 38 (1756), widened by Mowlem & Co., opened February 28, 1899; historical notes notes of King-street and the Great George-street site, *Builder*, August 11, 1883; December 25, 1886; and February 4, 1899; of the Cockpit, May 1, 1897. *Great George-street*, 25, Sir E. Knatchbull's, Lord Byron's remains lay in state on the way to Hucknall Torkard; houses at corner of Delahay-street—Henry Wyatt. *Axe-yard* (Fludyer-street)—Davenant, Pepys, Harriet Martineau. *Downing-street.*—Smollett, 1745-6; Boswell; Gibbon at Lord Sheffield's in the square. *Dover House*—Lady Caroline Lamb, *ob.* Jan 26, 1828. *Admiralty*—at the north-east corner Macnaughten shot E. Drummond, Sir R. Peel's private secretary, mistaking him for Peel, January 20, 1843. R. Adam's screen, 1760, altered about 1827. G. L. Taylor being surveyor of naval buildings, etc. Victoria-embankment, 1864-70. *Parliament-street*—4, Henry Grattan in 1807.

Colonial and Home Offices; ornamental carving—Farmer and Brindley; Foreign Office; stone carving inside and outside—Mr. Farmer; India Office; inside carving—Mr. Earp, outside—Mr. Birnie Philip; panels in relief—Mr. Phyffers; some figures—Mr. Protat and Mr. Raymond Smith; New War Office; figures of Peace, War, Truth, Justice, etc.; for façade—Mr. A. Drury, R.U.S. Inst.; frieze of west front and sculpture—Mr. Frith.

LETTER FROM PARIS.

BEFORE closing its final sitting for the year 1904, the Municipal Council of Paris has been occupied with the final decorative work at the Hôtel de Ville. The Council had intrusted to M. Willette the decoration of a large room which, on official *fête* days, forms a reception-room for the President of the Republic. M. Adolphe Willette, who is a *caricaturiste* of the first order, commenced his career as a decorative artist, and has, therefore, a special acquaintance with this class of work. He proposes to represent, in a large centre panel, all the industries or *métiers* of Paris, and in two side panels the *Fêtes* of the Parisian annual holiday, and sports of children in the Champs Elysées. These latter will very likely contain charming figures; but, nevertheless, we think it is a mistake to have given any portion of the decoration of the Hôtel de Ville, which should be grave and austere, to specialists in a light and satirical form of art. M. Forain, another caricaturist, has also received a commission for part of the Hôtel de Ville, and it is feared that the Council have not acted with judgment in these commissions. For the completion of the Galerie Lobau they have engaged M. Georges Picard, who has already decorated the cupolas in conjunction with M. Risler. These final decorations include six large allegorical compositions, thirty-four columns united by "arcs doubleaux" and two semi-circular niches, the whole decorated with garlands and child figures recalling the decorations of the vault. Lastly, the Council have resolved to send to the Petit Palais a large decoration by M. Lhermitte, representing the arrival of goods at the Halles in early morning. This painting at present decorates a small room near the Salle des Fêtes, to which the public are not admitted; and it is certainly better that this fine work should be placed in a museum where everyone can see it. The Council have also, before separating, authorised the erection of a monument in the Champs Elysées to the memory of the poet Armand Sylvestre. This monument, to be executed by M. Mercié, will be placed near the Petit Palais, on one of the lawns of the Cours la Reine.

In a few days the second exhibition of photographic documents of Paris will open in the Petit Palais. The special subject of this exhibition will be views of old Montmartre, the banks of the Bièvre within Paris, and various private gardens. The examples selected by the jury as worth preservation are to go to the Carnavalet Museum. At the Petit Palais there will also be installed, before long, the splendid collection of ceramics given by the Sèvres manufactory, and which were sent in the first instance to the St. Louis exhibition.

The last section of the No. 3 Metropolitan railway, between the Boulevard Menilmontant and the Place Gambetta, will shortly be opened to the public. The line will be of great service to the public in connection with the line between the Avenue de Villiers and Père Lachaise, and the manner in which the difficulties of its construction have been surmounted reflects great credit on the engineer, M. Bienvenu. The works for No. 4 line are to be commenced shortly. This will include the passage of the railway under the Ile de la Cité and the two branches of the Seine, by means of two cylinders each 5 mètres diameter, with walls of 0·15 thick, and 1,100 mètres in length, each carrying one track. These tubes will commence in the middle of the Rue des Halles, to finish at the end of Rue Danton. The rails will be 14 mètres below the river level. The line No. 7, from the Louvre to the Place du Danube, will be shortly commenced, and its main station, originally intended to be at the Palais Royal, will be established at the Place du Carrousel near the Gambetta monument, and connected with the Palais Royal by a subterranean footway. At the other extremity of the line extensive works will be necessitated by the ancient quarries called the "Carrières d'Amérique"; an expenditure of two million francs will be necessary to consolidate this ground, where 1,300 pits, from 30 to 40 mètres deep, are being sunk, to be filled with concrete to form a secure foundation for the railway.

M. Louis Bonnier, Voyer-en-Chef to the City of Paris, has been elected President of the Société des Architectes Diplomés, MM. Blavette and Georges Legras being elected Vice-presidents.

There have been 201 competitors for the Godebœuf prize in architecture at the Ecole des Beaux-Arts. The prize has been awarded to M. Marozeau, a pupil of M. Esquié.

A new practical school of mechanics and electricity has been founded in Rue Falguière with the co-operation of a group of architects, engineers, and manufacturers. The school, which undoubtedly supplies a want, will have the name of "Ecole Bréguet."

M. Guiard, formerly architect to the late Princess Mathilde Buonaparte, has been commissioned to design the monument which is to be erected in memory of the Princess in the Church of Saint Gratien, opposite the tomb of Marshall Catinat. The monument, which is to be of a very simple character, will be surmounted by the fine bust executed by Carpeaux, and at present in the Louvre.

The French Government have authorised the Luxembourg Museum to lend Whistler's portrait of his mother for the exhibition of the International Society of Painters, Sculptors, and Gravers, which is just about to open in London.

We have to record the death, at the age of sixty-four, of the painter Henry Léopold Lévy, who was one of the best pupils of Picot, Cabanel, and Eugene Fromartin. He was selected to carry on, at the Panthéon, the decoration commenced by Cabanel. He was author also of the charming decoration of a doorway near the Grand Salle des Fêtes at the Hôtel de Ville representing "Les Heures du Jour et de la Nuit"; and also executed the three fine ceiling paintings which decorate the Salles des Fêtes of the Mairie of the sixth arrondissement. Lévy had remarkable qualities both as a designer and a colourist. He had received medals in the Salons of 1865, 1867, and 1869, the decoration of the Legion of Honour in 1872, and a medal of the First Class in the universal exhibition of 1878.

THE SCHOOL OF ART, BUSHEY.—It is stated that the buildings of Professor Hubert von Herkomer's late School of Art at Bushey, Hertfordshire, which were recently disposed of by sale at auction, are about to be re-opened by Miss Lucy Kemp-Welch as a School of Painting. We understand that, whilst the traditions of the Bushey School for painting the figure from life will in no wise be broken, arrangements are to be made for building a glass-house in which animals in unfettered movement can be studied and painted, this, as everyone knows, being the class of art in which Miss Kemp-Welch has made her chief success.

Fifty Years Ago.

LECTURES ON GOTHIC ARCHITECTURE AT DONCASTER.—Mr. E. B. Denison, Q.C., has been lecturing at Doncaster on Architecture, in connection with the parish church now in course of re-erection. The lecturer took occasion to combat the notion that the ornamentation of churches or even the building of them in the Gothic style, is connected with Popery; and showed how in all ages and in all countries of the world the passion for magnificent building, not only for religious but for all other public purposes, seems to be inherent in the minds of civilized men; and after giving amply sufficient illustrations of his statement, he remarked that it would be strange indeed if churches, which are intended for the highest of all public objects, should be the only public buildings consecrated to ugliness. As to the supposed connection between Gothic architecture and Popery, he said that it was a striking fact, that, although Gothic architecture arose among the nations who overran the ancient Roman empire and city, it had never been able to take root in Rome, the headquarters of the Romish religion, or even in any part of Italy. It is equally remarkable that Gothic architecture decayed and fell long before the Reformation; that it was not revived by the Roman Catholics when it did revive; and that to this day they have not among them a single architect whose works are equal to several that could be named among our own. The best that can be said of their best architect, Pugin, he thought, is, that before his death he had learnt enough of architecture to confess that he had never erected a single church that was not a failure.—*The Builder*, January 6, 1855.

Illustrations.

THE MAKER OF THE SONG.

THIS is from a water-colour frieze drawing by Mr. J. Staines Babb, who writes that the subject may be briefly described thus:—"The Maker of the Song, poet and musician in one, is about to be borne aloft by his companions, in their grateful enthusiasm, to a triumphal progress. Behind him stands the winged Genius of Song leading boyhood onward. The male figure with the lyre expresses the cadence of melody, and the youth in the rear, the rythmic complement of the perfect song.

"Before the Poet is a group of votaries, who welcome their benefactor and carry torches kindled at the Poet's own flame. The Graces dance in front of the procession, and foremost goes the State, or City, personified by a female figure, whose courage and very existence live by the Poet's inspired strains."

The artist has enclosed the following sonnet, putting the idea in poetic form:—

"Boy! stretch thy hand and seize the Winged Song
Called into being by him we raise on high;
Thou shalt be borne aloft on pinions strong,
And view Life's cycle from the purple sky.

Beside him Rhythm and Cadence of sweet strings,
His brother spirits—other selves of love,
Endow and glorify the mortal things
Of grief or joy, given by the gods above.

Hail to thee, Maker! who hast given the dower
Of warmth for zeal, and soothing flame for peace;
Womanhood, Childhood, Manhood, feel Thy power,
And graces dance—so shall our state increase,
What time her Poet son hath brought to form and sight
The harmonies of Fate which work the world's delight."

LIVERPOOL CATHEDRAL.

WE are glad to give our readers this view of Liverpool Cathedral. The drawing was made from Mr. Scott's working drawings, and shows the considerable modifications and improvements that have been effected in the design since we published the original competition drawings. One alteration is the introduction of a large east window in the choir; the original idea in this respect was finer; many churches old and new lose much from over-lighting at the east end. The change in this respect was against Mr. Scott's judgment, and is regrettable.

Mr. Curtis Green has made a fine drawing of the Cathedral as it should appear when completed, and in general lines it makes a fine and effective composition, towering above the mass of small houses below it. We still consider that the erection of a mediæval cathedral in

the present day is an anachronism; but it is at all events, in this case, a picturesque anachronism.

A HALL IN TENNYSON'S "PALACE OF ART."

TENNYSON'S dream-like poem, "The Palace of Art," has always fascinated me with its succession of word-pictures and descriptions. Some years ago I made an attempt in the *Builder* at an idea of its exterior aspect. This is supposed to be one of the many interiors through which the soul wandered, as described in the quotation. H. H. S.

"PEACE": DESIGN FOR THE DECORATION OF A PUBLIC BUILDING.

THIS design, which we have already noticed as having gained the Royal Academy Prize in this class of work, sufficiently explains itself, except that we may mention that the space given for the design, showing a wall cut into by a semi-circular arch, was furnished in a diagram to the competitors, part of the problem being to fit the design to a special position.

As we have before said, we think this method of illustrating "Peace" is rather vague, but as the Academy accepted it we may suppose that they considered it to come within the terms of the subject given, and there is no doubt that it was the best work sent in. It has the merit also of being really a decorative design, with no pictorial character whatever in it. We give also a reproduction from the life-size cartoon of one of the figures shown in the general design.

The artist is Mr. G. Howard Short.

LOGGIA DEI LANZI, FLORENCE.

THIS Loggia was originally known as the Loggia dei Signori. It is said to be from a design of Orcagna dating about 1356; it was not built till twenty years later; the names of Benci di Cione and Simone di Francesco Talenti are given as the architects. This form of open-air hall was a feature of Florentine palaces, and in the present instance it was doubtless the stage of many impressive and gorgeous public functions, the Piazza della Signoria holding the audience. It is now a gallery of famous sculptures. Benevenuto Cellini's Perseus, with the head of the Medusa, is shown on the left. The lion shown is not the antique one, but that by Flamino Vacca. Menelaus with the body of Patroclus, a restored antique, is shown in the near foreground; the group behind this is modern. The statues at the back are antiques.

The drawing was made on the spot by Mr. A. C. Conrade. Many illustrations of the Loggia from the exterior have been published; but a view taken from the interior is not common; indeed, this is the first we have seen.

THE CHURCH OF OUR LADY OF RESTELLO, BELEM, PORTUGAL.

THERE existed in mediæval times a small chapel at Restello, a place between two and three miles from Lisbon, and towards the mouth of the Tagus. It was founded by Dom Enrique, the Infante, for the special use and benefit of sailors.

Before sailing on his voyage to the East Indies, on July 8, 1497, Vasco de Gama paid his devotions here; as also on the occasion of his return, about two years later.

It was to commemorate the momentous results of this voyage that Dom Manuel I. (1495-1521) erected over the site of the small chapel the present sumptuous church of Our Lady of Restello. It is in a style like the later or Ogival Gothic of Spain, with some local differences. The decorative work is of the Plataesque school, and is most elaborate and highly finished. The sculpture, with which it is profusely adorned, is of high merit and interest. The portal is very rich in its composition, with figures, brackets, canopies, and foliage, etc., most effectively treated.

There are in the interior statues of Our Lady (under a superb canopy), St. Michael, Dom Manuel I., and many others. Some of the Royal tombs of Portugal are in the vaults of the adjoining convent. The buildings at Belem are among the finest of the few remaining specimens of mediæval Portuguese Gothic. A. C. C.

KINGSTON BRIDGE.

IN a note in our issue of October 5 last year (page 356) we gave some account of the history of Kingston Bridge, in view of the fact that there was some talk of rebuilding it. We hope however that this threat will not now be carried out; at all events we understand that if the bridge is widened, it will be done by rebuilding one side on its present design.

One never knows, however, what may be done when an old bridge is once meddled with, and therefore it is well to have a record of Kingston Bridge while still intact. Mr. W. Monk has made an excellent drawing of it; and though it is not equal to old Kew Bridge, it is a fine example of that kind of simple but dignified structure which is so much more effective than the supposed "ornamental" treatment with which many modern bridges are bedizened.

LUTON CHURCH, BEDFORDSHIRE.

REFERENCE has recently been made in these columns (*Builder*, November 12, 1904) to the proposed repair of the fine church of Luton. Its western tower, the chief feature of the exterior, of flint and stone, is shown in one of the plates, and the most interesting feature of the interior, the baptistry, an octagonal structure enclosing the font, is illustrated in the text. The diameter of the interior of this baptistery is about 7 ft. 4 in., and its total height 20 ft.

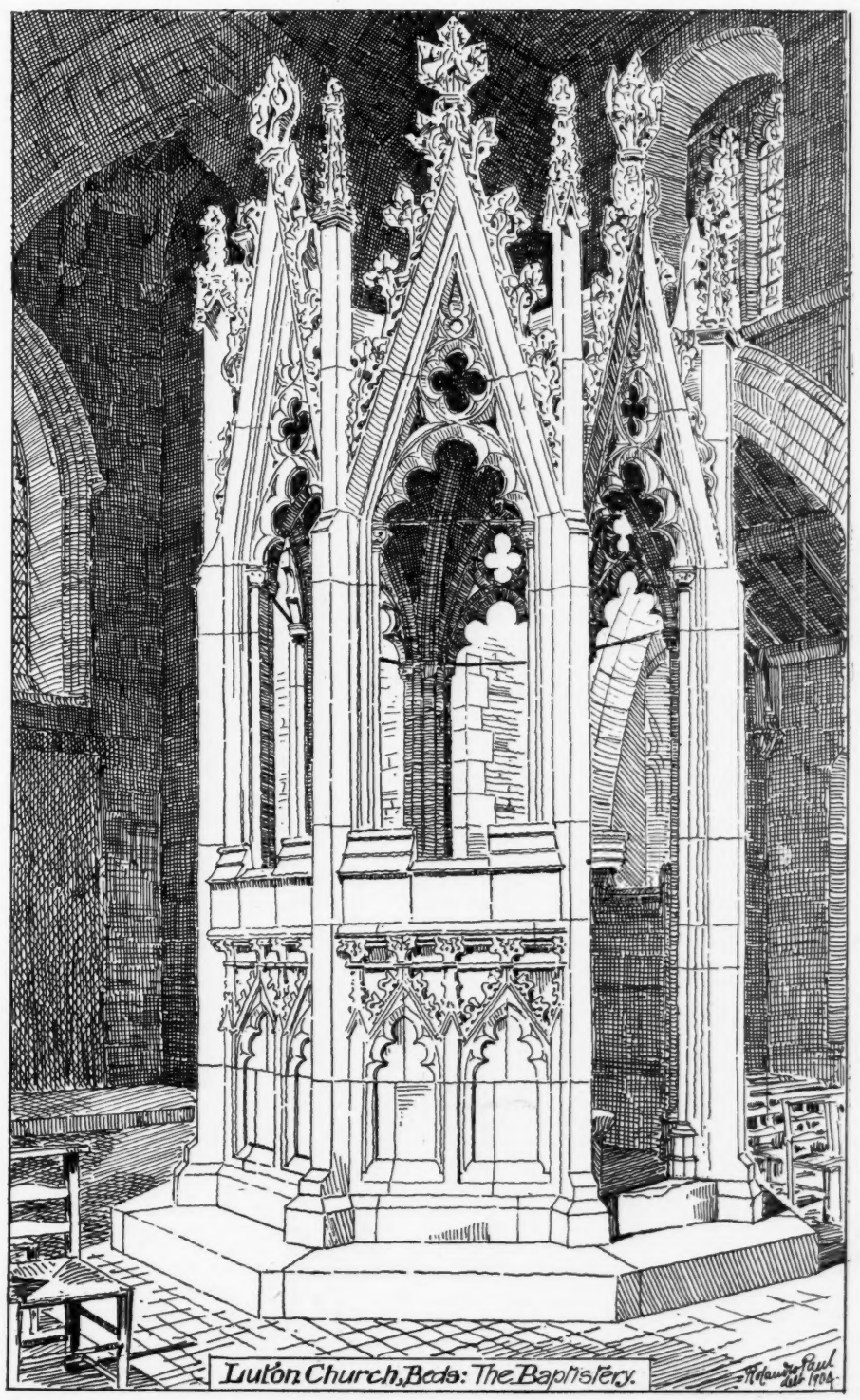
It stands in the centre of the nave, in the second bay from the tower. The font itself, with an octagon bowl, a central drum, and surrounding detached columns, is, with the exception of the latter, of Purbeck. The other chief objects of interest are the Wenlock chapel and tomb, the sedilia on the south side of the chancel bearing the motto of Wheathampstead, Abbot of St. Albans, and the Easter Sepulchre on the north side of the chancel, this latter being of earlier date.

DECORATIVE TREATMENT OF KING'S CROSS STATION FACADE.

THE front of King's Cross Station, plain and unassuming as it is, is the best and most sensibly treated railway station façade in London, as it is not an unmeaning screen, but really expresses the structure in its rear, the two large arches corresponding with the two internal roofs.

Mr. A. C. Dickie has suggested in this drawing a decorative treatment of the façade in various coloured marbles, for which its simple style and expanse of flat surfaces renders it very suitable.

Mr. Dickie writes, in explanation of his design:—"The lines of the present brick design have been retained in every respect. The marbles which are least affected by the London atmosphere, and which would be adaptable to the colour scheme, are green and red serpentines, Jura buff, and alabaster. The lower projecting arcade is intended to be in green and red serpentine banded; and the



towers, arches, and spandrils to be buff Jura ground with panels formed of green serpentine slips. The upper panels of the towers to be red serpentine, and the outer ring of the two arches to be in the same marble. The inlay enrichment on the cornice to be green serpentine on a Jura buff ground."

The design was of course made in colour, and we should have wished to have reproduced it so, but the cost, unfortunately, was prohibitive. The general effect can, however, be judged by the monochrome reproduction in conjunction with the author's description.

ILLUSTRATIONS OF OLD LONDON SITES.

THESE views are taken from plates in the Crace Collection in the British Museum; they are given as illustrations of the article in this issue on old London sites in the neighbourhood of Whitehall and Charing Cross, and must be taken in connexion with that article.

The title "Scotland Yard" on No. 2 sheet is a mistake in the lettering of the drawing in the Crace collection, which was copied here before we discovered the error. It should be "Whitehall Yard" or "Court"; Scotland Yard was higher up to the right.

SOME OLD LONDON HERALDRY.

OF the six heraldic stones illustrated only one —the shield from St. Saviour's Church, Southwark—is now *in situ*. Of the other five, three (the lion and shield from the Strand and the two examples from Clare Market) are now in the possession of the London County Council at Spring Gardens; the remaining two form part of the collection at the Guildhall Museum.

The arms and supporters of Gilbert Holles, Earl of Clare, were about ten or eleven years ago on the front of a house over what was known as Gilbert's-passage. A good reproduction from a photograph of this house will be found in the *Westminster Budget* of August 25, 1893. On the demolition of this house the arms were preserved, and afterwards placed on the first floor level of No. 8, Holles-street, and so remained until that street, with others in the vicinity, was demolished to make way for the new Strand and Holborn thoroughfare. The earl's coronet is much mutilated, but the arms themselves are well preserved, also the inscription with date 1665, and the motto SPES . AUDACES . ADJUVAT . on the ribbon below.

The smaller panel, with two Blackamoors' heads and initials and date 1715, were until recently on the angle of the house at the junction of Holles-street and Clare Market. The third panel—with a lion rampant and shield charged with the Arms of the City, was on the first floor of No. 342, Strand (at the corner of Catherine-street).

Before the demolition of the Old Bell Inn, Holborn, with its picturesque galleries, the well-carved panel with the arms of Gregge, now in the Guildhall Museum, occupied a prominent place on the Holborn front of the inn. Considering its exposed position, it is in excellent preservation. Another panel in the same museum has a well-carved eagle, a part of the crest of the Stanley family, brought from Crooked-lane, E.C.

SCULPTURE: "L'OFFRANDE A L'AUTEL DE L'AMOUR."

This group, at once poetic in fancy and admirable in sculpturesque execution, was a prominent exhibit in the sculpture hall of the Paris Salon last year.

The sculptor is M. Hector Lemaire.

LIBRARY, KINROSS, N.B.—A new public library is to be erected at Kinross from plans by Mr. Peter L. Henderson, Edinburgh, whose design was selected in competition. The building is in two stories, the upper flat containing a house for the librarian, and a museum, while on the ground floor are—on the left of the entrance, a lending library for 6,500 volumes; on the right, a reading-room, and at the back a hall to accommodate 160 persons, with retiring-room, lavatories, etc. At the back of the hall is a small gallery, to accommodate about thirty persons. The front is a simple treatment in Scotch stonework, with a battlement tower in the centre bearing an inscription tablet, and flanked on the one side with a crow-stepped gable, and on the other with a pavilion roof and dormer.

COMPETITIONS.

SCHOOL, POULTON-ROAD, POULTON, CHESHIRE.—The following is the result of this competition: — 1st premiated design, Messrs. Thomas E. & James Murray, 10, Blandford-road, Bedford Park, London; 2nd, Messrs. Farmer & Williams, Prudential-buildings, 36, Dale-street, Liverpool; 3rd, Mr. Joseph Holt, Scottish Prudential-buildings, 9, Albert-square, Manchester.

SECONDARY SCHOOL, POOLE, DORSETSHIRE.—Designs for the new secondary school, to be built on a site at Seldown, given to the borough by Lord Wimborne, have been sent in for competition for the premiums offered by the education authority. The committee in making their awards were assisted by Mr. John Elford (Borough Surveyor) and Mr. S. J. Newman (Surveyor to the Branksome Urban District Council). The result is that the first premium of 30*l.* has been awarded to Mr. G. Bligh Livesay, of Parkstone, and the second of 15*l.* to Mr. Walter Andrew, also of Parkstone.

Books.

The Architect's and Builder's Pocket-Book: A Handbook for Architects, Structural Engineers, Builders, and Draughtsmen. By FRANK E. KIDDER, C.E., Ph.D., Fellow of the American Institute of Architects. Illustrated with 1,000 engravings, mostly from original designs. Fourteenth Edition, re-written. New York: John Wiley & Sons. London: Chapman & Hall. 1904.

IF the reader judges of this book by its title he will probably form a most inadequate opinion of the enormous amount of instructive material which it contains. We do not feel confident to give an expert opinion upon the proportions and tensile strength of pockets as designed in the United States, but it is problematical whether many architects in that country will find it practicable or convenient to carry about with them a "pocket-book" measuring about 7 in. by 4½ in. by 2 in. thick, and weighing nearly two pounds. Nevertheless, the claim made by this portly volume on the capacity of its owner's pocket is small as compared with the demand which its contents make upon his mental receptivity. In writing his first edition, some twenty years ago, Dr. Kidder aimed at giving to architects and builders a reference book occupying a position analogous to Trautwine's pocket-book for engineers—comprising practical data, rules, and tables, relating to building construction. That edition, although requiring three years for its preparation, contained only 586 pages, and could fairly be called a "pocket-book." As time passed by, so many developments took place in connexion with building construction that, at last, in spite of the revisions made in thirteen consecutive editions, the author decided to enlarge the scope of his work, and the present edition, containing nearly 1,700 pages, is the result. It may be convenient if we state here that in the latest revision the author had in view the production of (1) "A reference book which should contain some information on every subject (except design) likely to come before an architect, structural engineer, draughtsman, or master-builder, including data for estimating the approximate cost. (2) To as thoroughly cover the subject of architectural engineering as is practicable in a handbook. (3) To present all information in as simple and convenient a form for immediate application as is consistent with accuracy. To this end, a great many new tables, arranged and computed by the author, have been inserted." In view of the comprehensive programme here set forth, it will be readily understood that the author found it necessary to make a very considerable addition to the size of the volume, which is now an invaluable adjunct to the office or drawing-table, although its original title of "pocket-book" is still retained.

The book is divided into three parts, of which the first and third are sub-divided into paragraphs, and the second into chapters, a somewhat meaningless lack of uniformity. Part I. is devoted entirely to units of weight and various mathematical data. In the compilation of such matter it is very difficult to know where to stop, but the author has included very little in the way of unnecessary data and tables. Part II. is entitled "Strength of Materials and Stability of Structures," and comprises twenty-eight chapters covering nearly 1,000 pages. After disposing of preliminaries, the author commences in Chapter II. the consideration of "Foundations and Spread Footings." A useful term is employed in these pages to distinguish between the real foundation of a structure and the earth on which it rests, sometimes incorrectly described as the "foundation." It is here designated as the "foundation-bed." The most noteworthy part of this chapter is to be found in the section dealing with "Spread Foundations," a heading under which the author describes various types of such work more familiar to American than to British architects, among them being the following:—(1) Concrete footings with twisted or other forms of iron tension rods, making the transverse strength of the footings equal to that of steel beams. A table on page 160 giving the strength and properties of footings constructed in this way will be found serviceable as a check upon calculations. (2) Steel beam footings, for wide foundations of small height, as largely used in Chicago. Referring to these the author expresses the opinion, with which we quite agree, that it is doubtful whether steel footings will prove as durable as those of masonry. (3) Caisson foundations, the chief value of which is in connexion with the erection of heavy buildings over treacherous soils, permitting a bearing to be secured on solid bed-rock at considerable depths.

Passing on, the author discusses the construction of masonry walls and footings, retaining walls, and vault walls, and gives data relative to cements and concretes, and to the strength of brickwork, stone masonry, and concrete masonry. Then comes a theoretical chapter dealing with the composition and resolution of forces and the centre of gravity, subjects that could have been treated just as well, and a little more appropriately, in the preliminary portion of Part II. Still, the chapter is not altogether out of place, as it serves to explain the graphic methods applied in Chapters VII. and VIII., wherein are considered the stability of piers, buttresses, and arches, the latter of these chapters being an excellent little treatise on arch construction. "Moments of Inertia and Resistance, and Radii of Gyration" receive very ample attention, and, after methods of calculation have been explained, a series of voluminous tables is given containing the dimensions and properties of numerous sections of structural steel. The value of these tables is comparatively small to British architects, as the sections in question are based on American standards, and in many cases relate to special sections rolled by certain firms in the United States. Without intending any discourtesy to the author, we express the hope that the usefulness of the tables in this country may be still further reduced by the universal adoption of the British standard sections recommended by the Engineering Standards Committee. Chapter XI. on "Resistance to Tension" is another comprehensive section of the volume, and among the chief matters dealt with are the physical properties of iron and steel, the strength of rods, ropes, and cables, and the proportions of screw ends, eye-bars, and turnbuckles. The question of resistance to shear raised in Chapter XII. naturally brings under consideration the proportions and strength of riveted joints, and the strength of pins and bolts, these being subjects to which far too little attention is paid in architectural engineering. After dealing briefly with the proportions of cast-iron and steel-bearing plates for columns, beams, and for brackets on cast-iron columns, the author goes fully into the strength of columns in a chapter which contains a vast fund of information, although unfortunately many of the tables relate to special forms of columns made by various American firms. We are glad to see that due emphasis is laid on the necessity for taking into account the effect of eccentric loading. In this chapter numerous useful diagrams are given of steel column sections, connexions, and base plates. No less than six chapters, covering 150 pages, are devoted to different forms of timber, stone, cast-iron, and steel beams. This portion of the handbook should be widely appreciated by architects and builders alike.

"Mill and Warehouse Construction" is the title of a chapter which deserves special notice. As understood in the United States, the term is employed to describe a special system of construction which, although not what is commonly called "fireproof," has the effect of reducing fire risks very considerably. The notes given by the author will be found of much interest, and it may be mentioned that they

are taken from an illustrated report issued by the Insurance Engineering Station, Boston (U.S.A.). The next two chapters, entitled "Fire-proofing of Buildings," and "Fire-proof and Incombustible Floors and Flat Roofs," respectively, leave very little unsaid on these subjects, and contain, moreover, an excellent series of notes relative to concrete-steel beam and floor construction. The remainder of Part II. is occupied with the discussion of roof trusses, and wind bracing. The various types of trusses are well described and illustrated, and simple methods are stated for the computation of stresses, and for determining the proportions of the members of roof trusses. The concluding chapter on Wind "Bracing" is particularly worth careful study.

Part III. covers about 530 pages, and rejoices in the compendious title, "Useful Information for Architects, Builders, and Superintendents, and all who have to do with the Building Trades." It is true that a fairly large proportion of the information has little value to the British architect. Among such matter we class numerous estimates of cost based upon American prices, tables relative to the dimensions of various purely American fittings of different kinds, lengthy price-lists of common and plate-glass, reprints of legal enactments, and a brief trade directory of manufacturers in the United States. Other information of encyclopædic character is included, which, although interesting, can scarcely be looked upon as necessary in a practical handbook. Still, making allowance for all non-technical material in this part of the volume, there remains much that is quite to the point. Heating and ventilating systems are thoroughly discussed, as also are chimney consruction, hydraulics and plumbing, gas lighting, and electric lighting, while the voluminous series of notes and data upon other matters connected with building construction represent an immense fund of information which the architect can draw upon for the refreshment of his memory, or the student for the acquisition of knowledge.

Dr. Kidder's pocket-book is less a collection of notes such as are to be found in Molesworth, than a small library of text books bound in one cover. Speaking generally, it is well up to date, and when lack of space has prevented the author from dealing at sufficient length with any particular subject, he has given references to books or technical journals, so that in such cases his work serves as an index to other sources of knowledge. The task which the author set himself was a great one; it has been admirably performed, and he is to be thoroughly congratulated upon the result achieved.

Ornament and its Application. By LEWIS F. DAY. London: B. T. Batsford. 1904.

"IT is strange that there should be any occasion to insist upon the necessity of knowledge, and to combat the common superstition that the artistic faculty, because it is inborn, is all-sufficient."

This, from p. 5 of Mr. Day's Introduction, is a very good text for any dissertation upon the principles of Ornament and their application.

The book before us is not the first from Mr. Day's pen having for its subject the nature and evolution of design. His method here, as elsewhere—although the examples are almost all from more or less "historic" sources—is not that of the archæologist or of the amateur, but is rather that of the craftsman applying his knowledge of to-day's work to the study and consideration of what has been done in the past. His book is admirably written and ingeniously planned. Perhaps only those who have themselves tried to write a technical work can at all appreciate the problems which arise in connexion with what a writer calls "Method." How to preserve, in a wide and scattered field of facts, some semblance of order and consequence is the question which has to be faced and answered. To those not already familiar with Mr. Day's methods a word must be said. In the work before us the purely conventional treatment of Ornament comes first. Then we have a chapter on the *meaning* of Applied Art. We are next led to a chapter designated the Teaching of the Tool. And then Mr. Day inserts two cleverly written chapters called respectively "Where to stop" and "More than enough." Later on special sections of the work are devoted to "processes," and there is a very good one on "Partnerships." The work ends (p. 297) with a refreshing return to one of the foremost principles of any scheme of decoration—"The inevitable line."

Of necessity such an arrangement of subject matter provokes some redundancy of illustration, and precludes the possibility of keeping the various crafts even for one moment separate. With this in his mind, the author has given us a most useful syllabus of illustrations, arranged alphabetically under their subject. This extends from pp. 1-32. With this list itself we might begin what we have to say by way of cavil. Under "Human Figure" we should expect references not only to a good deal of talk, but to a fair number of illustrations. We are referred to one only, Fig. 271. Inasmuch as there is no first-rate series of examples in the book covering so very important a basis for decorative effect, the few illustrations which *might* serve should, we think, have been enumerated, such, for instance, as Figs. 143, 150, 153, 155, 242, 257. In the text some deeper insistence on the peculiar and excellent treatment of the human figure should surely have found a place where Greek Vase Painting and the Majolica of Renaissance times came up for consideration. We pass from this to a word about that section of the work devoted to "Pottery." These are but small points, but perhaps worth raising, when a book obviously aims at thoroughness. Under "Pâte sur pâte," something might in another edition be said about Wedgwood, his experiments, and ultimately fine results. M. Solon, whose work is praised by the author, learnt something from Wedgwood. The personal equation is very much manifest in the following passage:—"Where is the piece of Sèvres or Dresden china to compare with a fine bit of Nankin blue and white porcelain?" Their aims are very different, and some of us have a use for Sèvres (don't let us put Dresden beside it) which Nankin cannot fulfil. After all the first charm of Sèvres is the symmetry in its design; it is felicitous above all other ware in the proportion between its deep-coloured borders and the white space left for individual painting.

A word about the choice of plates—among so many good ones we should have liked to see, as illustrations of Ironwork, some examples of English and French work of the XVIIIth century. This is a noticeable omission. With regard to book-binding, it is impossible to gather much from one of the illustrations (p. 284). It might be an example of either appliqué or inlaid leather ornament; or, again, of painted or stained work—the paint applied after the tooling had been executed—a fashion common in England, Germany, and the Low Countries after 1610. This example is evidently German and is rather coarse in treatment.

There are one or two misprints scattered about the book, but the only one we noticed as rather a nuisance was on p. 287. Here the reference to the picture of The Assumption should be 285 and not 185.

In another edition—for which we hope a well-justified sale of this issue will afford an excuse—we should like to see properly treated, in a little section by itself, Heraldry, as a subject matter for design. It is ignored in the present volume. Lastly, when so much has been said of individual artists down to a welcome appreciation of Mr. Walter Crane, the next edition need not leave out the Brothers Adam.

Old Cottages, Farms, and Other Houses in Shropshire, Herefordshire, and Cheshire. Photographs by J. W. PARKINSON, with notes and sketches by E. A. OULD, F.R.I.B.A. B. T. Batsford. 1904. Crown 4to.

THIS book is a companion volume to that recently published by Mr. Batsford on the old cottages and farmhouses of Kent and Sussex, the work of Messrs. W. Galsworthy Davie and E. Guy Dawber. The new volume is confined to half timbered work of which the counties treated of are still rich with examples of that style of architecture. Mr. Ould in his descriptive notes points out the characteristics of the work in these counties. The scantlings of the timbers used is heavier, and there is more variety and richness in the constructive forms themselves than in the southern counties. In the first case Mr. Ould suggests as an explanation that timber was more abundant where it was neither used for ship-building or iron-smelting; in the second the geometric patterns and elaboration of the struts to the framing he attributes to the trees used which supplied more distorted and crooked timber than straight. The notes also contain an analysis of timber building construction, a form of construction now unfortunately seldom adopted but none the less interesting for that. We do not remember seeing this class of building described in any work or building construction. Few and favoured are the spots where the law will still admit of its use, and few the clients who will pay for it; English oak is difficult to get as it is being supplanted by the inferior but more easily worked foreign varieties. Oak buildings are extraordinarily durable, witness Greenstead church, described in our last issue, built probably 900 or 1,000 years ago, the timber still sound and so hard it is difficult to touch it with a saw. There are, however, few half timbered buildings left of an earlier date than the beginning of the XVth century, the bulk of it belongs to the XVIIth The present work shows a collection of exceedingly good photographs which will one day form a valuable record of a manner of building growing rarer year by year. Of all styles of building half-timbered work is the most picturesque, *vide* plates IX., XVII., XIX., XLVII., LV., LXXXI., story projecting over story and thatched gable over all, on lines strictly scientific the soundness of which is approved by time. In half-timbered houses the chimney gains special prominence from having to be built of stone or brick. Their generous size adds much to the appearance of the building, what could be more delightful in this respect than the cottage shown in plate XIX. Plate LXXXI., again, is charming; these houses seem to fit into the country and harmonise with the surroundings like birds or insects with protective colouring. They are little masterpieces in their way of which their builder designers were happily unconscious. They are probably well satisfied with the pleasure derived from doing the work. The book is nicely-got-up and worth the guinea that will buy it to all who love things beautiful or old.

The Cathedral Church of Saint Asaph. By PEARCE B. IRONSIDE BAX. London: George Bell & Sons. 1904.

LIKE preceding volumes of this series of cathedrals, this latest addition, dealing with the history of the church and See of Saint Asaph, in North Wales, is excellent both in letterpress and illustrations, the latter being chiefly from photographs expressly taken for the work. Considering its chequered history it is fortunate that so much of the mediæval church has been spared to us. Its chief characteristics are extreme simplicity of detail both inside and outside, and the effect of spaciousness given to the interior. The church has also the advantage of occupying a fine position on high ground above the river Clwyd. A good deal of restoration was carried out in 1868 under Sir G. G. Scott, during which the fine original Early English windows of the presbytery were found. The remainder of the fabric is almost entirely of XIVth century date, the window tracery being particularly effective. The canopied stalls in the choir are mostly ancient and of Perpendicular date. The throne and much of the woodwork of the choir are, however, modern. It is to be regretted that the monumental slabs were removed from the presbytery floor to make room for a new tile pavement, and it would add interest to that part of the church, which at present has rather a bare appearance, if they could be placed in positions as near as possible to their original sites. The fine effigy attributed to Bishop Annian stands at present against the south-west pier of the tower. Another ancient slab with a curious shield of arms has been placed in the north transept floor, and a third slab, in the south transept, with a cross, is supposed to have covered the grave of Bishop Wm. de Spridlington (who died in 1382), and was removed at the restoration from the east end of the choir. A chapter is devoted to the history of the See, and short notices are given of the bishops. Following is a list of deans, and a ground-plan of the church to a useful scale, showing the site of the destroyed chapter-house on the north side of the presbytery. In addition to the views of the church, good photographic illustrations are given of the small parish church of St. Asaph, between the cathedral and the river, and of the picturesque ruins of Rhuddlan Castle, on the banks of the Clwyd between St. Asaph and the sea.

A Synopsical Monograph on the Abbey of Fécamp, Normandy. By J. ATTWOOD SLATER. London: Sprague & Co. 1903.

THE chief feature of this monograph on the interesting Benedictine church of Fécamp is a

series of illustrations reproduced from drawings and photographs by the author—twelve plates in all supplemented by a ground plan. The ground plan is, unfortunately, to a very small scale, and, consequently, is lacking in detail, but it shows well the Benedictine arrangement and is interesting to compare with buildings of the same class in England—with Tewkesbury Abbey Church, for instance—which it much resembles. An earlier church was destroyed by fire in 1168, and the greater part of the existing building was built between 1171 and 1220. The beautiful Lady chapel, however, is of XVth century Flamboyant work, so are the windows of the chapel on its south side, and what remains of the pulpitum that formerly occupied the ninth bay of the nave. This pulpitum when perfect must have been an exceedingly striking feature of the interior. Its position is still clearly marked by canopy work attached to the eighth pair of piers, and the traces of side screens under the arches of the ninth bay. A fragment has also been placed in the north transept against the wall, much in the same way, apparently, as in the case of the fine work at Salisbury Cathedral, and a good idea of its delicacy of workmanship is given in Mr. Slater's drawing in one of the plates. Of the other details, the choir stalls, the organ case at the west end, and the stone screens dividing the chapels of the great apse from the ambulatory, are all of Renaissance work. The west front was rebuilt in 1748 in the style then in vogue, and, it need scarcely be added, with details utterly out of keeping with the remainder of the church.

Among the features of interest are some tombs of the abbots, and stained glass of the XIIIth and two following centuries, the greater part of the latter being in the windows of the Lady chapel.

Three illustrations—two from photographs—are also given of the picturesque but simple chapel of Notre Dame du Salut. A good deal of character is given to an otherwise plain exterior by the use of brick and stone in broad alternate bands, in the construction of the buttresses.

While praise may be bestowed on the plates (we should have liked to see some measured sections and details, however, as well), it is to be regretted that, in the letterpress attached to them—ten pages in length—much of it is so spoiled by an eccentricity of style as to be almost unreadable. "Concoctions of a wizardly goodness, and sagacity, of ravishing and supreme advantage in tone" and much more in the same strain constitutes a large part of the notes, and, although much may no doubt be put down to enthusiasm, some plain facts about the building, put in plain English, would have been preferable. The ten pages devoted to the building are none too many in which to record the numerous fine and interesting details of a building of this class. As it is, much is obviously omitted that should have been included, and its place usurped by outbursts that are, to say the least, irritating to the reader.

TRADE CATALOGUES.

WE have received from the Edison & Swan Company, of Queen-street, London, a leaflet illustrating the "button" switch, for use in electric lighting circuits. In our opinion this switch is a great improvement on the "tumbler" switch which is now almost universally used. In appearance it is similar to the switches used with electric bells. By pressing a push the lamp is lighted, and when we wish to turn out the light the push is pressed in exactly the same way. The cycle of operation required is performed by merely pressing the button twice, and thus it can be done by one finger only. It is impossible to receive a shock, as the button is made of insulating material. These switches are made in several patterns, and some of them can be let into the wall directly, as the mechanism is all boxed in by a metal cover, and so can be made flush with the surface. The only objection we can think of to this type of switch is that, in the event of the filament of the lamp being broken, we should be unable to tell whether the switch was "on" or "off." In another leaflet a switch plug which acts automatically is illustrated. It is suitable for high voltage circuits, and meets the requirements of fire insurance offices.

Mr. Peter Brotherhood sends us his new catalogue of air-compressing machinery, a pamphlet which is devoted chiefly to the description of vertical steam-driven compressors, the compound two-stage type being selected for special attention as a representative example of the many combinations possible. We may mention that the one-stage type, of which an illustration and brief particulars are given, is suitable for air pressures varying from 20 lb. to 80 lb. per sq. in.; the two-stage type for pressures from 80 lb. to 250 lb. per sq. in.; and a five-stage type, also illustrated, for the working air pressure of 3,000 lb. per sq. in. References are made in the catalogue to electrically-driven and belt-driven compressors, and among a few auxiliaries described, a patent clutch coupling and a flexible shaft coupling are worthy of special note. The last mentioned, primarily intended for connecting the rotating shafts of engines and dynamos, may frequently be found of service for coupling any two shafts that are not in perfect alignment, and without causing bending strain in either shaft, or waste of power due to excessive friction in the bearings.

Messrs. Knights & Drake send us a circular describing their patent plant for producing concrete paving slabs. The apparatus consists of a mould in the form of a box, on the bottom of which the first slab is made. A horizontal wooden partition is then inserted, on the top of which another slab is formed, and so on until the mould is full. The whole series of slabs—eight or ten in number—is then turned out to harden, and in about twenty-four hours the slabs are ready to be separated, and the wooden sheets can be removed for use again. Compression of the concrete is produced by means of a steel-faced die driven home by a sliding weight raised by ropes and pulleys and allowed to fall on the die. The patentees claim that a block comprising eight slabs, 24 in. × 24 in. × 2½ in. can be turned out in about twenty minutes.

The General Electric Company have sent us a small catalogue describing their various types of electric radiators. The issue of this catalogue is a timely one, as nearly all electric supply companies will now supply electric current at greatly reduced rates for heating and cooking purposes. Although at first sight the cost of the current used by these radiators seems prohibitive, yet when we take into consideration the saving of labour effected by their use, and that they do no harm to decoration, etc., they may often be economically employed. Each radiator lamp consumes about a halfpenny-worth of energy per hour, assuming that the energy can be obtained at 2d. per unit, and as four lamps will heat a moderately-sized room, it will be seen that it compares favourably with heating by gas, and is peculiarly suitable for libraries as it does no harm to the bindings of books.

The General Electric Company also sends us leaflets describing various novelties. The "Robertson Witelite" lamp has apparently been designed to meet the competition caused by the introduction of Nernst lamps. A high efficiency lamp is enclosed in a large spherical bulb, which is made of frosted glass underneath but the top part of the bulb is of clear glass, and the light leaving the lamp in the upward direction is reflected downwards by an opal shade. The general effect produced by this lamp is good. They also show a cheap automatic time switch which should prove valuable in flats and hotels. By its use the current can be switched off any circuit at a given hour. Other leaflets describe new and improved forms of Leclanché batteries for telephone, bell and fire alarm indicator work.

The Hozier Engineering Co., of Glasgow, send us their preliminary catalogue for 1905 of "Argyll" motor-cars, ranging in price from 700*l.* down to 450*l.* So far as we can judge from the illustrations and specifications here published, these cars are of good design in every sense of the term, an opinion which is confirmed by the facsimile reproduction of a reliability certificate awarded to the makers by the Scottish Automobile Club, for a non-stop run between Glasgow and London in May last. We are quite in sympathy with the announcement made that it is the constant aim of the firm to simplify the mechanism and eliminate every point liable to failure or apt to be troublesome. The popularity of motor vehicles generally would be much increased by greater attention to such matters, and, we need scarcely say, by further reductions in the cost of production.

Messrs. John Whitehead & Co., of Preston, send us their new catalogue No. 126 of brick, tile, pipe, and clay-working machinery. The catalogue is a volume of convenient size containing 100 pages and a large number of illustrations. About one-third of the book is devoted to the description of multiple-process machines from combined pugging and brick-making machines with an output of about 6,000 bricks daily to combination plants with capacities up to 40,000 bricks a day. The pages following illustrate cutting tables of different types, brick and tile pressing machines, and various accessories. Next, we find descriptions of single and double action brick, pipe, and tile machines, apparatus for specially large pipes, and pipe socketing machines. The remainder of the catalogue deals chiefly with crushing, grinding, pugging, and moulding plant. The whole of the apparatus described appears to be well designed and of thoroughly substantial construction, as might be expected of a firm that has occupied a prominent position in connexion with the brick-making industry for more than half a century.

Messrs. G. Philip & Son send us a catalogue of their series of atlases; atlas for general reader; atlas for yachtsmen; for students of astronomy; for motorists; for teachers and students; etc.

Messrs. J. E. King & Co. have sent us their new catalogue of the well-known "Mack" patent slabs and hollow blocks. These are made of gypsum, and reeds are embedded in the mass to render them lighter and more resistant to sound. The catalogue shows in detail the various uses to which the slabs and blocks can be put in floors, ceilings, partitions, wall-linings, etc., and for encasing steel joists, stanchions, etc. Summaries of tests to which the slabs have been submitted in London, Berlin, Boston, and Chicago, are given on pages 10 and 11.

The British Steel Corner Plate Co. have sent us a sheet containing a description and illustrations of their galvanised steel corner-plate for the protection of plastered angles in buildings. It is designed to take the place of wood beads or cement angles, and is fixed by means of clips nailed into the joints of the brickwork.

From Messrs. J. H. Sankey & Son we have received a new catalogue consisting of three sections, formerly issued in three separate catalogues. The first is entitled "Bricks, Cements, etc.," and includes illustrations and prices of plain and moulded facings, paving bricks, glazed bricks, glazed tiles, roofing tiles and ridges, slates, etc. Section F describes fireclay goods of various kinds, including plain and special bricks, boiler seatings, hollow bricks for partitions, etc. The third section contains a fairly comprehensive list of drain-pipes, gullies, interceptors, and other sanitary ware. The catalogue is fully priced, and will prove useful to buyers of what are termed stock goods.

Mr. Thomas Potterton (Balham) has sent us his new catalogue of apparatus for hot-water supply. This is rather more than an ordinary trade catalogue, as it contains a good deal of information of general interest and utility on the subject of domestic hot-water services. The special object of the catalogue is to explain the advantages of the inventor's types of boilers for fixing at the back of kitchen fires. They are designed to obtain a greater proportion of heat than is obtained by boilers of ordinary shape, and are now shown in connection with the "Rex." "Regina," and "Competent" kitcheners, which have been specially made to receive the new types of boiler.

The Underfeed Stoker Co. send us their new catalogue, giving full descriptions of the various types of mechanical stokers made by them for internally-fired boilers and for all types of water-tube boilers. As the name of this apparatus implies, the fuel is introduced from below the level of the fire, and this end is attained by means of a fuel chamber under the grate, which is of special design and has a gap along the middle. The effect of feeding in this manner is to maintain a surface of incandescent fuel at the top, which, while exercising a maximum heating effect, is at the same time gradually heating the fresh fuel coming up from below and causing it to give up combustible gases. Thus it follows that the highest possible thermal efficiency and absolutely smokeless combustion should be secured, even with the most bituminous coals. How far these ends can be attained is a question that is to some extent answered by copies of reports printed at the end of the catalogue. We may add that mechanical draught is an essential part of this stoker system, and is supplied by fans driven from steam engines or electric motors, as may be most convenient.

Correspondence.

CANTERBURY TOWER.

SIR,—As public interest is aroused in the repair of the grand central tower of Canterbury Cathedral, the following extract from the fifth report (1876) of the Historical Art Commission on the documents belonging to the Dean and Chapter, may prove of interest to your readers.

"The central tower of Canterbury Cathedral, named, from an image which formerly surmounted it, the "Angel Steeple," was rebuilt at the end of the XVth century. The MS. (c. 245) records the outlay during nearly three years, extending from Easter, 1494, to Michaelmas, 1496. 1,650 quarters of lime were consumed, each quarter costing 8d., 1,132 tons of Caen stone purchased for 530*l*. 8s. 10½d., and 480,000 bricks were used, costing 3s. 4d. the thousand. The total expense for the whole period amounted to 1,035*l*. 16s. 3¾d., in addition to which the monastery provided out of its stores lead, nails, ashlar, and ironwork."

In what are called the "Scrap books" in this collection of the Chapter are three volumes, which contain bills for work done and materials furnished or some memorandum of money paid out.

The report of these valuable records of the Dean and Chapter was drawn up by the late Dr. Sheppard, who gave much time to their better care and elucidation. The charters alone, dating from the VIIIth century to the reign of Elizabeth, are a historical feature, while the general range of subjects is very wide, touching on the monastic history of Christ Church and also on its relation to other distant foundations connected therewith.

It is most satisfactory that such a report has been printed, thus assisting the antiquary and scholar, who cannot examine the original papers.

S. W. KERSHAW.

THE GUARDIANSHIP OF LONDON ANTIQUITIES.

SIR,—An interesting relic of London, viz., the dial stone which used formerly to occupy the centre of Seven Dials, has for many years occupied an ignominious position at the roadside of Weybridge Common, the column upon which it was originally placed having been converted into a memorial to the late Duchess of Kent.

Can nothing be done to rescue this memorial of London from where it now is, or, at any rate, have it placed on some other part of the Common? The wonder is that, after all these years, it has not been turned into road material by the local authorities.

I referred to it nearly two years ago in a paper read before the Architectural Association.

ANDREW OLIVER.

BRICKS FOR PAVING.

SIR,—I find that red bricks suitable for paving garden paths, made in my neighbourhood, cost about twice as much as good ordinary bricks, although they are only 2 in. thick instead of 3 in. It is true they have a smoother surface. This is necessary in order that they may be easily washed clean.

Should it not be possible to buy what I require—viz., a brick with a smooth surface on one side—at a more reasonable price? Perhaps one of your readers will be good enough to help me. The thickness of the bricks is immaterial.

CLAUDE JOHNSON.

GALLERY OF BRITISH ART, MILLBANK.—By the bequest of Mr. Henry Evans, of Derby, the picture, "Outward Bound," painted by Sir Edward J. Poynter, P.R.A., is added to the collection. Miss Tye has presented Chantrey's small sketch in burned clay of "A Nymph Reclining," and Mrs. Watts is the donor of a bronze portrait bust of the late G. F. Watts, by Mr. Alfred Gilbert.

TOWN HALL, MANSFIELD.—The Mansfield Corporation are asking for power in their Bill, which will shortly be before Parliament, to alter, enlarge, and improve their town hall and other adjoining properties, or to pull down the existing buildings and erect a new town hall, market hall, corn exchange, post-office, arcade, shops, offices, and any public or municipal buildings, and furnish and equip the same. They also seek borrowing powers to the extent of 40,000*l*. for new waterworks; 3,000*l*. for the purchase of land and erection of a museum; and for the town hall, etc., such sum as the Local Government Board may determine.

The Student's Column.

TYPICAL STRUCTURES IN CONCRETE-STEEL.

INTRODUCTORY NOTE.

IN a recent series of articles* we dealt with the distinctive characteristics of concrete-steel, discussing the principles underlying construction in this material and stating rules for its application to the design of the chief members required in structural work.

Since the publication of the articles to which we refer, a widespread interest with regard to the subject has been manifested among architects, and we believe there is a general desire for further information. Having considered sufficiently, although by no means exhaustively, the main points necessary for the guidance of the designer, we now propose to deal with the practical side of the question by describing and illustrating the details of some typical buildings and other structures in concrete-steel. Our hope is that the records thus presented may be of practical service to those who are already convinced of the merits possessed by concrete-steel, and, further, that they may have the effect of arousing the interest of those who have not yet realised its peculiar suitability as a material of construction, or who have not been convinced of the ease with which it can be applied to structural work of almost every kind.

The First Concrete-Steel Building in Chicago.

It is very frequently stated, and especially by Americans, that Great Britain is the most backward among civilised nations to adopt new things. Sweeping assertions of the kind are seldom of universal application, and are frequently made by persons who mistake reasonable caution for undue timidity or culpable indifference, but it may be admitted that with respect to reinforced concrete construction we are considerably behind other countries. Those who throw stones, however, are not entirely free from blame, for we find that Chicago, which claims to be one of the most progressive cities in the United States, has made tardy recognition of concrete-steel as a material of construction. Steel cage and skeleton buildings have retained their position, and, until quite recently, the use of concrete-steel has extended to nothing more than floor construction.

The first indication of a change is marked by the erection of the building which is illustrated in this article, but it will be observed that the employment of concrete-steel is limited to the interior, as the outer walls are of brick masonry built in the ordinary manner. In accordance with the practice general in the United States, the main features of the buildings were designed by an architect, and the purely structural work was executed from the drawings and under the superintendence of a civil engineer.

The building, occupying a site measuring 100 ft. by 130 ft. deep, with frontages on Michigan-avenue and 13th-street, was intended for use as a warehouse, having been designed for seven stories, of which four have been finished and occupied, leaving the other three to be added as tenants offer themselves.

Fig. 1 includes a part sectional elevation through the outer wall, girders, and columns, an elevation of one series of columns, and cross sections of two girders and a column. The height of the ground floor is 10 ft. 6 in. above the basement floor, the height of the first story 15 ft. and of the other two stories 12 ft., measured in each case from floor to floor, the clear height being 1 ft. 6 in. less, with the exception of the second story, in which it is 1 ft. 7 in. less.

All the concrete-steel work, including column bases, columns, girders, joists, and floor slabs, is monolithic, being formed of Portland cement concrete, reinforced by round bars of mild steel, with an elastic limit of 36,000 lb. per square inch, these bars being of different sizes according to requirements.

We may here mention that the columns are spaced 15 ft. 6 in. apart, in rows running from front to back of the building, the rows being at a distance of 20 ft. one from another, measurements being taken from centre to centre in each case.

The column bases rest upon a layer of fine sand, which is permeated with water and lies above a stratum of blue clay. The bases are proportioned so as to keep the load down to 4,000 lb. per square foot. Fig. 2 shows the details of a typical column base, the area in this instance being 11 ft. by 11 ft., but in some cases the dimensions are slightly less. No vertical bars or stirrups are employed for resisting shear, but the downward thrust of the column is distributed over the concrete by means of a horizontal plate of metal (see section in Fig. 2).

In constructing the footings, a 4-in. layer of concrete was first formed, the proportions being 1 part of Portland cement, 2 parts of sand, and 3 parts of limestone crushed so as to pass through a 1½ in. diam. ring. Four ½-in. steel bars were then placed side by side near and parallel to each edge of the concrete slab, over these two sets of seven 1-in. bars spaced 6 in. apart were laid diagonally from corner to corner of the slab, and finally two sets of seven ⅞-in. bars were laid near the centre and parallel to the edges of the slab (see plan in Fig. 2). All the bars were connected by means of two strands of 18 B.W.G. wire, so as to keep the bars in their correct positions. Concrete was then poured upon and around the bars to form a layer 5 in. thick. The bars were shaken to permit the material to settle properly, and the concrete was thoroughly tamped. The concrete used in this layer was mixed in the proportions of 1 part of Portland cement, 2¼ parts of sand, and 2½ parts of gravel passed through a ½ in. diam. ring. A third layer of 1 : 2 : 3 concrete was then deposited so as to complete the footing to the dimensions and shape shown by the section in Fig. 2. The parabolic curve in the same section represents the diagram of bending moments for the footing, and this diagram determined the height of the upper layer of concrete, upon which a ½-in. steel plate, 24 in. square, was placed to receive the four vertical bars of the column reinforcement.

The footings of the outside walls and the party wall of the building are of concrete reinforced by longitudinal and transverse bars, varying in diameter from ¾ in. to 1 in., and spaced from 4 in. to 9 in. apart, according to the loads to be carried. These bars are placed near the under-surface of the footing, at a distance equal to about one-sixth of the thickness of the concrete.

Although the columns are continuous from the bottom to the top of the building, the vertical bars of the reinforcement extend only from floor to floor, the joints, which are 6 in. above the floor level in each case, being made by means of a loosely-fitting sleeve of iron pipe, into which the ends of two bars were inserted, and the annular space between the bars and the sleeve was filled with cement grout. For the purpose of insuring the satisfactory bearing of one bar upon another, the end surfaces of the bars were carefully squared.

By the vertical and transverse column sections in Fig. 1 it will be seen that the reinforcement consists of four vertical bars connected at intervals by ⅝ in. diam. bands cross-tied with wires. The addition of these wire ties has the effect of assisting the round bands to resist outward pressure. Although the transverse reinforcement is probably not more effective than it would be if made of flat bars, it had the advantage of permitting the designer to place the vertical bars slightly nearer the exterior surface of the concrete than is possible when the verticals are threaded through holes drilled or punched in flat bars.

The vertical bars in the ground-floor columns are 2 in. diam., the bars for the columns above being reduced in diameter, as indicated in the vertical section in Fig. 1, in accordance with the diminution of load. Throughout the columns the concrete consists of 1 part of Portland cement, 2 parts of sand, and 2 parts of gravel passed through a ½-in. ring.

In building up the columns, the reinforcement was first erected and the moulds were then set up, clamped, and carefully plumbed and squared with the building. Details of a column mould will be seen in Figs. 3 and 5. The moulds consisted of square boxes of 1¾-in. pine boards screwed together with 2-in. by 6-in. cleats, and bound at intervals by 2-in. by 4-in. clamps bolted at the corners, the ends of the clamps being wired as shown by the lower drawing in Fig. 3, representing a section on A—A in Fig. 5. The clamps were made rather larger than shown in the drawing, and were fixed outside the cleats

* The *Builder*, vol. lxxxv.

so that wedges could be driven between the clamps and the cleats.

The moulds were constructed so that they could be lengthened or shortened to suit the heights of the different stories of the building (see Fig. 5).

The upper drawing in Fig. 3 is a cross section of the mould at B—B in Fig. 5, and shows the arrangement for the connexion of longitudinal and transverse girders. Bracket reinforcement, consisting of four $\frac{5}{8}$-in. bent bars, was placed at the capitals of the columns (see Fig. 1), for connexion with the lower reinforcement of the girders, to afford more adequate support for the girders as well as to provide for resisting vertical shear.

The next step was to set up the girder moulds in accordance with the arrangement represented in Figs. 4 and 5, but it should be observed that the pouring of concrete into the column moulds was performed before the girder and floor slab reinforcement had been laid. The greatest care was taken to insure the penetration of concrete to all parts of the mould by stirring and tamping down the material between the bars.

Fig. 6 shows details of the reinforcement in one of the main girders, and it will be seen that the bars form the kind of truss usually adopted in the Hennebique system. The tension reinforcement consists of three 1-in. bars and the compression reinforcement of three $1\frac{3}{16}$-in. bars. There are also three bent bars of 1 in. diam. A novel feature of the reinforcement in this example is that the three bars in each truss are connected by means of electrically-welded network, 4-in. by 6-in. mesh, one net enveloping each set of reinforcing bars for one-third of the span at each end. The three separate sets of reinforcement are similarly connected by means of another net extending over the centre third of the span. The object of the network is to afford resistance to the effects of shearing stresses in the girder. The nets are bent over and wired to the compression bars, thus preventing these from buckling in an upward direction under heavy load. All the reinforcing bars are bent at the ends for a length varying from 1 in. to 3 in. to the form of a right angle, so as to increase adhesion between the concrete and the steel.

In every case the girder reinforcement was assembled and tied together on the ground level, being afterwards hoisted and placed in the moulds. To keep the lower bars from touching the bottom of the mould, the reinforcement was hung from small trestle frames provided at intervals along each span, and, to preserve the predetermined lateral spacing, sets of wedges were placed between the three trusses, each formed by one set of the reinforcing bars. The trestles mentioned were afterwards used as supports for plank gangways required for the purpose of wheeling and dumping concrete to form the floor slabs.

The girder forms shown in Figs. 4 and 5 were connected at each end to the column moulds, where they received additional support from 2-in. by 6-in. timber struts (see Fig. 5), and were supported further by three 4-in. by 6 in. timber posts placed on wedges at floor level and diagonally braced with 1-in. by 6-in. boards, as indicated in Fig. 5.

As soon as the girder moulds had been fixed in position the floor centring was erected. This was made in four parts for each panel, as shown in Fig. 4, to facilitate handling. The floor surface of the moulds consisted of boards simply nailed one alongside the other, but it would certainly be a better plan to employ matched boarding for the purpose. Owing to the weight of the floor, estimated at about 75 lb. per square foot, it was considered necessary to apply an adjustable centre support below each floor panel, as indicated by dotted lines in Fig. 4.

After the girder moulds and floor centring had been prepared, the reinforcing bars were distributed to different points of the floor, and were laid by a gang of labourers on marks previously made on the bottom of the floor centring. Two lathers followed the labourers to wire the bars together. All bars in the outer rows—that is, those next to the girders—were tied at every intersection in each direction, and the next three rows were tied at every third intersection. The bars in the middle of the panel were simply laid along the marked lines. All the floor bars were wedged up about 1 in. by means of stones. Finally, a series of bars termed "negation rods" was laid across the upper reinforcement of the girder and tied down to the floor rods on each side. These bars were designed to resist negative moments arising from continuous girder action, and causing tension in the upper parts of the floor slab near the supports. They were also intended to prevent the upper reinforcement of the girders from buckling in an upward direction under excessive strain. All the bars of the girder and floor reinforcement which ended at the outer walls of the building were bent

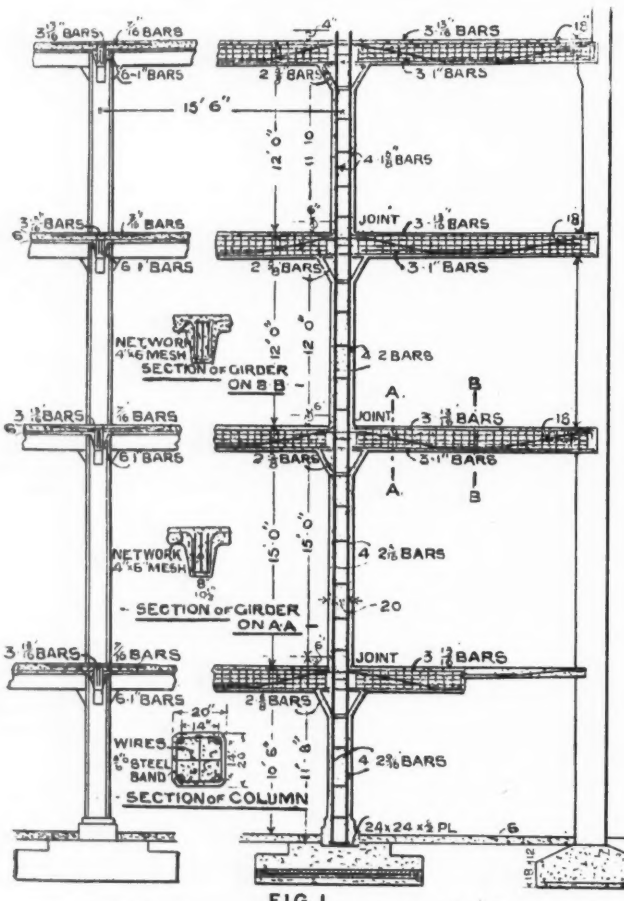
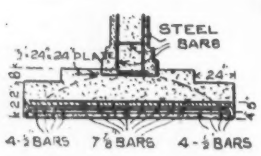


FIG. 1



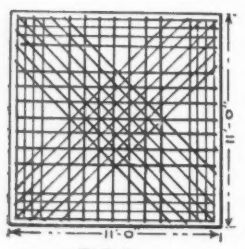


FIG 2

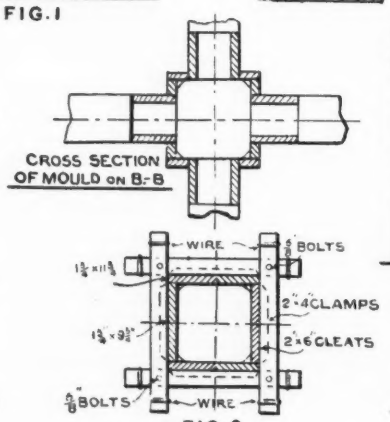


FIG 3

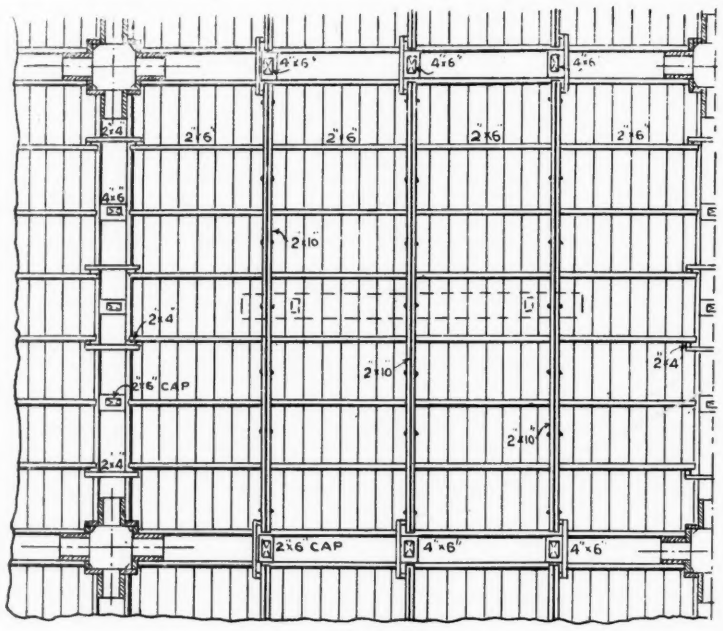


FIG 4

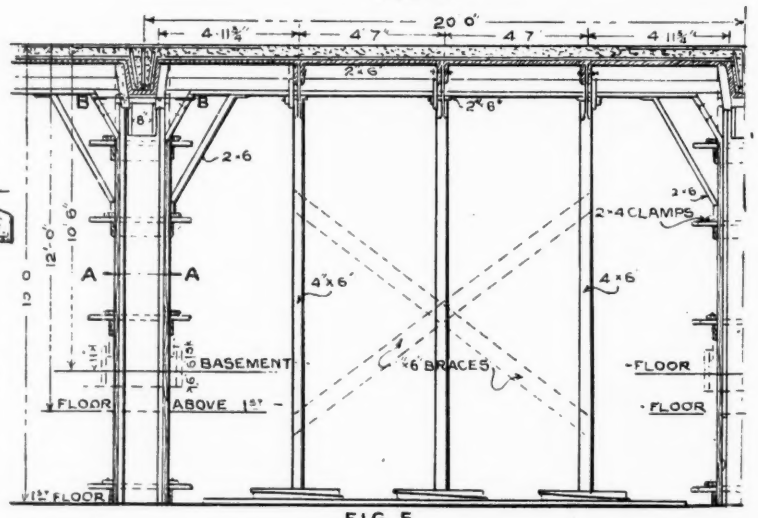


FIG 5

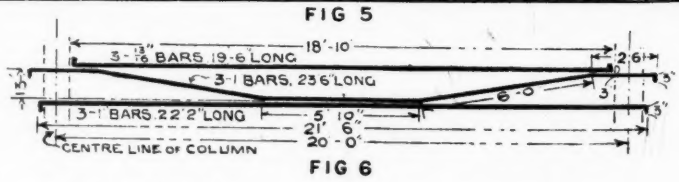


FIG 6

Illustrations to Student's Column.

for about 2 in. at the end to afford satisfactory anchorage, and the girders were carried from one-half to two-thirds of the thickness of the brickwork into the wall.

Having prepared the reinforcement in the manner described, the floor girders and floor slabs were cast. All the concrete for this portion of the work was in the proportions of 1 part of Portland cement, 2¼ parts of sand, and 2¼ parts of washed pebbles. For the girders, a very wet mixture was adopted, and the material was thoroughly stirred and shaken after pouring, so as to prevent the formation of voids. For the floor slabs, a somewhat dryer mixture was used, permitting the slabs to be tamped. As the concreting proceeded the stones wedged below the reinforcing bars were removed.

After being tamped, the surface was levelled off with a straight edge, and the floor, covering the whole area of the building at each story, presented the appearance of a single monolithic slab broken only by the projection of the vertical reinforcement of the columns, these bars protruding about 6 in. above the surface.

The floor slab was treated as a beam fixed at each end, the formulæ used being:—

For the outer panels

$$M = wl^2 \div 12 \quad .. \quad .. \quad .. \quad (1)$$

For the inner panels

$$M = wl^2 \div 24 \quad .. \quad .. \quad .. \quad (2)$$

Where

M = Bending moment.
w = Dead and live load in lbs. per sq. ft.
l = Span in feet.

Formula (1) gives the maximum bending moment, which occurs at the ends of an *encastré* beam, and formula (2) gives the bending moment which occurs at the centre of a similar beam.

Reference to Art. XVII., vol. lxxxv., will show that these formulæ practically agree with the treatment there recommended, except that nothing has been allowed for the arching effect due to a uniformly distributed load. The absence of such allowance, however, increases the strength of the floor at a merely nominal cost, and thus adds to the factor of safety.

The thickness (d) of the floor slab, in this case 6 in., was calculated by the rule

$$d = \sqrt{M \div 1{,}000} \quad .. \quad .. \quad .. \quad (3)$$

and the area in square inches of steel reinforcement in each direction of the bars per foot width of the slab was determined by the rule

$$a = 0{\cdot}075\ d \quad .. \quad .. \quad .. \quad .. \quad (4)$$

In using rule (3), the bending moment as calculated by formula (1) should be taken, and the floor slab made of the maximum thickness so ascertained. In the building under consideration, all the floors, except that over the third story, are 6 in. thick, and by formula (4) the area of reinforcement per foot width in each direction would be

$$a = 0{\cdot}075 \times 6 = 0{\cdot}45 \text{ sq. in.}$$

and the total area of steel in the two directions would be

$$a + a = 0{\cdot}45 + 0{\cdot}45 = 0{\cdot}9 \text{ sq. in.}$$

Thus, the proportion of steel to concrete is 1¼ per cent. of the sectional area of the floor slab.

The first story of this building was let and occupied by tenants before the fourth floor was finished, and on completion of the building no sag or deflection was observed in any of the girders or floor slabs.

All the concrete was mixed in a machine with a capacity of 75 cubic yds. daily, but the quantity laid only amounted to an average of about 64 cubic yds. a day. Ten days were allowed for the concrete to set, and on the expiration of that period the moulds were removed. The architectural features of the building were designed by Mr. J. Gamble Rogers, as architect, and the engineering details by Mr. E. Lee Heidenreich, as consulting engineer.

W. E. HENLEY MEMORIAL.—The Dean and Chapter of St. Paul's, having given a site in the Cathedral for the proposed monument in memory of the late Mr. William Ernest Henley, the committee, of which Lord Windsor is chairman, have accepted an offer made by M. Auguste Rodin to design a sculptured setting for his bust of Mr. Henley, which will be executed in bronze.

GENERAL BUILDING NEWS.

PONTRILAS COURT, HEREFORDSHIRE.—This residence has been remodelled; the old drainage system has been entirely removed and replaced by a system carried out upon the best modern principles. The question of sewage disposal has received careful consideration by the architects, the septic treatment being finally decided upon as being the best in this case; the necessary septic tank and filter beds have been laid down at a considerable distance from the residence. The whole of the sanitary fittings have been replaced and brought up to date. The water supply has been augmented, a new reservoir having been built and the water conveyed therefrom to the residence by means of galvanised water tubes. A complete installation of acetylene gas has been laid down, the generator used being supplied by Messrs. Thorn & Hoddle. The heating of the residence has been carried out by means of radiators, the heating medium adopted being low-pressure hot water. The sanitary work, water supply, heating, and general work have been carried out by Messrs. Beavan & Hodges, of Hereford, and the decorations and acetylene gas installation by Mr. J. C. M. Vaughan, of Hereford; the whole being according to the drawings and specifications and under the supervision of Messrs. Groome & Bettington, architects, Hereford.

ABERDEEN BUILDING TRADE.—The building trade in Aberdeen during the past year has not been brisk, and the estimated value of the plans passed by the Town Council shows a falling off of nearly one-third from the value of those passed the previous year. The period under review has been remarkable in respect that the completion of several important building undertakings is now within view. The extensive operations at Marischal College will be finished before another year is past, Regent Bridge is practically finished, and the new post-office is far advanced so far as actual building work is concerned. In succession to these, the only contracts of magnitude which have been settled recently are those for the new theatre and for Sunnybank School, which should provide work for a large staff of men for a considerable time. When the general trade of the city and the country generally is as it has been lately, so important a branch of industry as the building trade is one of the first to be affected, and herein, no doubt, is the explanation of the dulness experienced.—*Aberdeen Gazette.*

EDINBURGH BUILDING TRADE.—Prominent builders in the city state that for dulness in trade the year has not had a parallel for a considerable time. It is rather curious to note that this view does not coincide with the building statistics of the Edinburgh Dean of Guild Court, the returns of which show more building warrants than the previous year. For the number of idle men, therefore, other causes must be looked for. In the first place, it must at once be admitted that only about 60 per cent. of the work included in last year's return is in operation, and, compared with ten years ago, the statistics bear out that a similar condition prevailed at that time. It would, therefore, seem to indicate that the working population in this trade is vastly in excess of what normal conditions would warrant. This is particularly the case as regards unskilled labour. In no other trade in the town has there been such an outcry about the number of idle men than in the building trade. It must also be borne in mind that there is no industry which employs a greater number of unskilled labourers, and these are, as a rule, not of the provident class. For the year ended, the total warrants granted number 832. These include sixty-seven tenements, seventy-one villas, 212 self-contained houses, 128 public and other buildings, and 583 alterations. In these tenements were eight shops, thirty-seven houses of one apartment, 266 of two apartments, 218 of three apartments, 156 of four apartments, twenty-three of five apartments, and nine of six apartments, representing a total number of 709 tenement houses of an approximate value of 977,883*l.* At this corresponding period of last year, there were 785 warrants granted, and embraced ninety-six tenements, fifty-two villas, ninety-seven self-contained houses, 115 public and other buildings, and 580 alterations. In these tenements there were twenty-five shops, forty-eight houses of one apartment, 207 of two apartments, 396 of three apartments, 189 of four apartments, fifty-four of five apartments, two of six apartments, and one of seven apartments, representing a total number of 897 tenement houses—the year's work representing an approximate value of 825,584*l.*, thus showing an increase in favour of this year to the extent of 152,299*l.*—*Scotsman.*

GLASGOW BUILDING TRADE IN 1904.—The prediction made at this time last year that 1904 would be "a period of quietness" in the building trade throughout the city has been, unfortunately, amply borne out by results. Interviewing several of the principal builders and others interested in property, a Glasgow *Evening News'* representative ascertained that the building industry generally has been suffering for the last two years through the natural depression in trade. Public works, it was pointed out, have no inducement to make additions at present, and the building trade—being so much bound up with every manufacturing industry—had been affected by the dull times experienced by the latter. At present there must be a considerable number of men unemployed—a state of matters that may continue until February or March, by which time builders are in hopes that trade may brighten up. Notwithstanding the dullness of trade, wages generally in the building industry have fallen very little, and compare (it was added) very favourably with those of any operatives—skilled or unskilled. At first sight the statistics furnished by the Dean of Guild for his year ending in September were highly satisfactory, but, as was pointed out by Lord Inverclyde when retiring from the chair, there had really been a considerable decrease in building operations in Glasgow—exceptional causes keeping up the total valuations. The total number of linings granted was 540, of which eighty-three were for houses and shops, compared with 170 for the previous year, and 197 for the year before. There was a very marked falling-off in the applications for linings throughout the city, both in regard to houses with a small number of apartments, and houses with six apartments and upward. The decreased valuation in that respect, compared with the previous year, was no less than nearly 800,000*l.* That falling-off, however, had been met in the increase in valuations of linings applied for in connexion with public buildings, warehouses, workshops, and alterations and additions to existing buildings, while a few special linings for works of large value had made up for the decrease in other directions. The building of house property, it was further stated, has been brought to a complete standstill from the fact that already the supply is a long way ahead of the demand. The number of unlet houses—particularly for the working and middle classes—is greater than it has been at any time for the last ten years.

LEITH BUILDING TRADE.—The building trade in Leith during the past year has been anything but brisk, the total value of buildings for which warrants were granted by the Dean of Guild Court being only 179,700*l.*, as compared with 268,500*l.* during 1903, a decrease of 88,800*l.* Had it not been for the new poorhouse to be erected by Leith Parish Council at Seafield, the value of buildings passed by the Court would have been considerably less than half that of the previous year. The new poorhouse is estimated to cost about 60,000*l.*, and will, it is expected, take about three years to complete. Contracts have already been accepted for the boundary walls and roads, work in connexion with which is now being proceeded with. Altogether, fifty-six warrants were granted by the Dean of Guild Court during the year, as compared with fifty-eight during 1903. In addition to these, forty-one minor warrants were granted for work of an unimportant nature. Plans for thirty-two tenements were passed during the year. Of these, ten were of the two-roomed type, eleven of the three-roomed type, and eleven of the four and five roomed type, and they will provide accommodation for 315 families. These tenements are proposed to be built at Iona-street, Sloan-street, Albion-road, Jamieson-place, Darnell-road, Trinity-road, Craighall-crescent, Main-street, and Pitt-street; and a large block with fine shops underneath is also being erected by Mr. Sword at the corner of Great Junction-street and King-street. Warrants were granted during the year for sixty-two villas, chiefly of the flatted and semi-detached type.

THE BUILDING TRADE IN MANCHESTER.—The head of a large firm in Manchester pronounced the past year to have been one of the worst that he had known in the building trade for over thirty years. There had been less ordinary competitive building in the city of Manchester and the district round about than, he thought, had obtained for a generation. "Railway companies," he said, "are doing practically nothing. There has not been any estimating for railway work in the district during the last fifteen months. The London and North-Western Railway Company, which has generally been doing

something in the locality, has not had a set of quantities drawn out hereabouts for a whole year, and the same may be said of the Great Northern and the Midland Companies. The Lancashire and Yorkshire Railway Company have been enlarging Victoria Station, but that has been the limit of their building work. During the past fifteen months the railway companies have closed their pockets, and issued orders that there shall be no work done except that which was absolutely necessary. The Government, likewise, has been spending scarcely any money in Lancashire, except upon one or two small post-offices. Such public works as have been carried on in this part of the county have been chiefly school buildings for various education committees. These do not swell the ordinary volume of the building trade very much. In Manchester new buildings are always being raised. A large warehouse for Messrs. Joshua Hoyle & Sons in Piccadilly, the new premises of Parr's Banking Company in Spring-gardens and York-street, the Scottish Amicable Insurance Company's offices in Cross-street, offices in Brown-street, and warehouses in Dale-street, are a few examples of those which have been completed or nearly completed during the year, but the number of contracts of the kind has been much below the average. There have been some works in the neighbourhood of the Ship Canal, but the sum total throughout the locality has not been satisfactory. More men are out of employment in the building trade than, I think, I have ever known. There has, however, been no attempt on the part of the employers of labour in the district to reduce the rate of wages. We have kept up the maximum rate of pay although there have been inducements towards reduction. Many establishments are working short time, and at least one large firm in Manchester is employing scarcely half the number of men who have formed its complement in any of the past thirty years." The building trade in Liverpool, it was added, was fairly brisk. The building trade was always the last to be affected by depression. In like manner it was the last to be benefited by the return of good times. He anticipated that good times were coming now that the cotton industry was busy. When the cotton trade was making plenty of money there were plenty of building requirements. More inquiries were being made as to the value of land and buildings, and so far as Manchester was concerned this was very desirable, for he did not think there had ever before been so many valuable pieces of land and so much new property unoccupied in the city as had been the case recently. Bad trade for builders acted upon architects, and he was afraid that the architects of Manchester had suffered very considerably during the past from lack of commissions.—*Manchester Courier.*

BUILDING IN NEWCASTLE.—Each year that goes over leaves behind it an appreciable advance in the architectural and structural improvement of Newcastle. This has been particularly noticeable during the last decade, and has never been more remarkable than it has been during the year that is just closing. It has not been an organised scheme of building, such as that which ennobled and beautified the town in the time of Dobson and Grainger, but has been the result of the independent enterprise and skill of owners, architects, and builders. There is hardly a business thoroughfare in Newcastle where the evidences of change and improvement are not apparent, in stately buildings, rearing their roofs above their neighbours. Land is still increasing in value. Sites are, unhappily, not elastic; and so the unassuming brick buildings that were sufficient for a past generation are being replaced by tall erections of many stories, in modest imitation of the sky-scrapers of America. The buildings of Mr. Dobson's time were severe in their simplicity, as became, then, their association with commerce; but, since then, art has spread everywhere, and its influence is apparent in brick and stone.—*Newcastle Chronicle.*

THE BUILDING TRADE IN OLDHAM.—Glancing back at the building trade during the past year, the most activity seems to have been displayed amongst what may be termed semi-public bodies—namely, churches and chapels, the latter particularly. Of course, we are not taking mills and Corporation work into account. Speculative builders, however, have been very busy during this splendid year—splendid as far as weather goes—and they in consequence have tended to bring together a "Greater Oldham" through their work in the undeveloped portions of the skirting territory, and be it said that they have always found a ready market for their properties, which have mostly been of the cottage class. To sum up, on almost all sides during the year has been seen the handiwork of the man who builds not to order, but in order that he may sell or let. Churches and chapels have, as above stated, been active in rebuilding and alterations, and the outlook for the coming year is as hopeful as at the beginning of 1904. The officials of the building trade report a general slackness within the past month or two, but that there is a better outlook at present.—*Oldham Standard.*

BUILDING TRADE IN SHEFFIELD.—The year just ended has been characterised by depression in most of the great industries of the Kingdom, and Sheffield has not been an exception. Reports have shown that hundreds of men have been altogether without employment, or have been engaged only a portion of the week. But official statistics show that in Sheffield, at any rate, the building trade has not suffered so severely from the unsatisfactory condition of business as have many other branches of industry. In 1903 the plans deposited with the City Surveyor for buildings of various kinds numbered 1,296, and for the twelve months just ended they reached 1,194. In 1903 the houses shown on the approved plans were 2,338, and other buildings 420, while during the past year the houses have numbered 2,324, and other buildings 757. The houses certified as fit for habitation last year up to December 21 were 1,916, against 2,051. Although, therefore, there is a falling off in numbers, the decrease is very slight. Of the public buildings which have been completed or on which progress has been made during the year, the most important is the new University in Western Bank. The work of erection has been considerably advanced, and in a few months a portion of the large block of buildings will be occupied. Mr. Green, the chief building inspector, and his staff have had to deal with no fewer than 219 "dangerous properties" during the year. Thirty-one drainage schemes have been approved, and amongst the plans submitted were no fewer that thirty-seven for "sheds," most of them no doubt for storing motors and cycles.—*Sheffield Telegraph.*

PROPOSED NEW LIGHTHOUSE NEAR SUAKIN.—An official announcement has appeared inviting tenders on behalf of the Egyptian Ports and Lights Administration for the erection of a lighthouse on the Sanganeb Reef, near Suakin, on the Red Sea. Tenders will be received up to May 1, 1905, and meanwhile all communications on the subject should be addressed to the Deputy-Controller-General, Ports and Lights Administration, Alexandria. The following general description of the requirements is given:—Open ironwork tower; height of focal line, 165 ft. above high water; light of first order, showing all round, with red danger sector of approximately 140 deg. in lantern; petroleum—burning type of lamp; group flashing; recommended to be built upon screw piles driven into the coral; quarters required for four light-keepers, to be constructed in the framework of lighthouse; kitchen, messroom, office, storerooms, etc.; isolated storeroom for petroleum on piles connected by a bridge with lighthouse; fresh-wafer tanks and hand pumps, etc.; copper speaking tube to lantern from bottom of lighthouse, also gongs in men's quarters for communication from lantern; masonry caisson under lighthouse at least 6 ft. above high water, protected by a parapet 3 ft. high and 3 ft. thick; internal diameter of caisson to be at least 20 ft. more than outer piles; this caisson to be used for promenade for men, stowage of tanks, landing stores, etc. Wooden pier to edge of reef on iron piles will be required for landing stores, etc. The light-keepers' dwellings are to be constructed of wood, chemically treated as a precaution against fire, and care is to be taken to render both dwellings and lantern cool and well ventilated, the climate being very hot. The lighthouse, when completed, must be capable of resisting a wind pressure of at least 55 lbs. per sq. ft., 167 kilos per sq. metre. A small concrete platform already exists on the reef which, although not strong enough for use as a foundation, will assist in landing material, etc. Detailed drawings must be submitted with tenders; price to be quoted for lighthouse, erected on the reef, complete in all details and ready for use; materials to be of the very best quality, subject to the approval of the Administration's experts, who will have the power to reject any bad material or workmanship. The reef lies about thirteen miles to the eastward of Sheikh-el Barghut harbour, which place affords very good anchorage. The lighthouse is required to be built on the southern portion of the reef, which is accessible in nearly all weathers.

MASONIC BUILDINGS, NORWICH.—It is proposed to erect new masonic buildings on the site of the Masonic Club, 47, St. Giles'-street, Norwich. Recently the Managing Committee invited a number of local architects to submit plans for the building, and in the competition Mr. Albert C. Havers, of Norwich and Sheringham, was successful. The rooms for the club members will all be arranged on the ground floor. The rooms for the different lodges and chapters will be placed on the first floor, being approached by a staircase from the entrance hall. The kitchen, scullery, and domestic offices will be on the second floor, th approach being by secondary or service staircases from the back hall adjoining the staircase hall. The service bedrooms and linen store are to be on the top floor in close proximity to the kitchen and domestic offices, but on a higher level. The club-rooms on the ground floor will be approached from the street through an entrance lobby, fitted with folding doors, the following accommodation being provided:—Entrance hall, reading or smoke room, with ingle nook, boardroom, with fireproof strongroom for secretary's books and papers, billiard-room for two tables, cardroom, refreshment buffet, etc., lavatories, and sitting-room for steward and stewardess, with private door opening into entrance lobby. The lodge and chapter-rooms on the first floor will be approached from the entrance hall by a top-lighted staircase. The following accommodation is to be provided:—Landing, robing-room, with lavatories adjoining, and a temple designed in the Ionic order with six columns on each side and two at each end. These will be carried out in fibrous plaster. The length of the building is 36 ft., width 22 ft. 6 in., and height 16 ft. The ceiling is to be ornamented, and the walls, columns, and ceiling surfaces are for the present intended to be finished white. A chamber for an organ will also be provided. Adjoining will be the banqueting hall and a serving-room. The kitchen and domestic rooms will be on the second floor. The front elevation is intended to be carried out in Monk's Park stone, with parts in Portland stone, the entrance being centrally situated.

MANCHESTER MEDICAL VOLUNTEERS' HEADQUARTERS.—The new headquarters of the Manchester companies of the Royal Army Medical Corps (Volunteers) are situated at the corner of Upper Chorlton-road and Darnley-street, and, with the outdoor drill-grounds, cover a space of a little over four acres. Built of red stock brick and Rainhill stone, the administrative portion of the headquarters is dominated by two towers. A principal part of the building is a circular central hall. Around this, on the ground floor, are the caretaker's apartments, the commanding officer's room, orderly-room, adjutant's room, stores and office for the quartermaster, the men's canteen, and other offices. On the second floor is placed the officers' mess, which includes a dining-room, anteroom, and billiard-room, the sergeants' mess, and a large kitchen. In this part of the building there is also provided a lecture-room, and another room which can be used for demonstrations. The lecture-room will accommodate from 300 to 350 men. In the upper story is a room for the band, a gymnasium, and seven bedrooms and storerooms. The drill hall is 160 ft. long by 76 ft. 6 in. wide, exclusive of a platform and balcony, 15 ft. deep at one end of it. In addition there is a large outside drill-ground. Around two sides of the outside of the drill-shed are placed nine waggon-houses. The buildings have been designed by Mr. T. H. Cunliffe, architect, and built by Messrs. Neill & Son.

HOSPITAL EXTENSION, BRIGHTON.—The new out-patients' department at the Royal Alexandra Hospital for Sick Children in Dyke-road, is situated to the rear of the main building, with which it will be connected by a covered corridor. The new department is being built by Messrs. Lynn, Brighton, to the plans of Mr. T. Lainson, architect, also of Brighton. The front of the building is of red brick and rough-cast, with stone dressings, timbered above, and a tiled roof. The new waiting-room for out-patients is about 40 ft. long and 20 ft. wide, with separate plastering above a glazed brick dado, the flooring throughout being of mosaic. The walls have been decorated with a series of tile panels in colours illustrative of nursery fables. Communicating doors give admission to the consulting-room and dispensary, at the end of which is a corridor leading to a smaller waiting-room. Here the patients receive their medicine and pass out by a separate exit. This section of the block is the one already finished and in use. It has the usual office appointments. The remaining portion of the block, still in the hands of the builder, consists of a receiving-room for accident cases,

casual ward, surgery, and darkroom, etc., on the ground floor, and three isolation wards, nurses' room, kitchen, bathroom, etc., on the first floor. The staircase leading to the isolation ward is of concrete and has a separate entrance from the hospital, the flooring is fireproof, and serapite plastering has been used for the walls. The internal angles are rounded throughout the block. The cost amounts to about 3,000*l.*

KNUTSFORD PUBLIC LIBRARY.—A new library has been erected at Knutsford, from the designs of Mr. Alfred Darbyshire. The building is of brick and grey terra-cotta. The principal feature is a reading-room, which is 22 ft. by 33 ft. At the end of the reading-room are two alcoves where books and magazines may be taken and read. In the library there is shelving accommodation for 10,000 volumes. Rooms are provided for the librarian and for other purposes.

BUILDING IN YORK.—From the following figures it will be seen that, in comparison with last year, the building trade has diminished considerably in York. In 1903 there were 238 plans for dwelling-houses approved during the year as against 194 last year. Of the above dwelling-houses the number completed during 1903 was 328, and sixty-four last year; the total number of dwelling-houses in progress in 1903 was 161, and now seventy-three; number of dwelling-houses completed during last year, but approved prior to December 31, 1903, 179. In addition to the above 134 plans have been approved for additions and alterations to premises in various parts of the city, and the greater part of these have been carried out. The work of replacing the pinnacles and flying buttresses on the north side of the nave of York Minster has been commenced by preparing the stone in the Minster workyard. These operations were really undertaken by the Dean and Chapter so that the full staff of workmen should be employed during the whole of the winter. When the scaffolding has been erected in order to perform the work of fixing the pinnacles and buttresses, it is proposed to thoroughly examine the clerestory windows and restore the mullions which are now somewhat dilapidated. It is hoped that eventually the flying buttresses on the south side will be replaced. The erection of the scaffolding to the south-west tower was finished on February 20, 1903, the top pinnacles completed on November 18, 1904, and the uppermost portion of the scaffolding removed exactly a month later. It is anticipated that the whole of the scaffolding will be taken off the tower some time during 1905, and then the restoration of the gable over the great west window will be commenced.—*Yorkshire Herald.*

STAINED GLASS AND DECORATION.

KING'S SCHOOL, CANTERBURY.—In memory of the Rev. Herbert Waddington, a former pupil (1838-47), and a benefactor of the school, a new pulpit has been placed in the south choir transept of Canterbury Cathedral, which serves for the school chapel. The pulpit is of fumed oak, carved after designs by Mr. W. D. Caröe, Architect to the Cathedral.

MEMORIAL FONT, UPPERBY CHURCH.—A new memorial font was placed last week in Upperby Church (Cumberland). It is of local red stone, octagonal on plan, and in late Decorated style. The eight sides of the bowl have quatrefoil panels and in the centre of the alternate panels is a shield. Upon the eastern shield is the monogram, "I.H.S.," and on the north and south sides the shields carry the Greek letters Alpha and Omega respectively. The western shield contains a brass plate with the following inscription:—"To the glory of God and as a memorial of the ministry of the Rev. Henry Lonsdale, M.A., Hon. Canon of Carlisle and Rural Dean, Vicar of this Parish, 1889-1904. This font was erected, December, 1904."

APPOINTMENTS.

OXFORD.—The election is announced of Mr. C. J. Holmes, one of the editors of the *Burlington Magazine*, to the Slade Professorship of Fine Art, Oxford University.

DULWICH COLLEGE.—In succession to his father, the late Mr. James F. Field, who had held the appointment during a long period. Mr. Frederick William Field, a partner of the firm of Messrs. Field & Sons, of Chancery-lane and Borough High-street, Southwark, surveyors and estate agents, has been elected as an Estates Governor of Dulwich College.

FARADAY SOCIETY.—The council of the Faraday Society have nominated as their President Lord Kelvin, *vice* Sir Joseph Swan, who retired from that office at the close of last year.

SANITARY AND ENGINEERING NEWS.

WATERWORKS, BOLTON.—By their Bill, which will come before Parliament in the forthcoming session, the Bolton Corporation seek to construct new waterworks in Bolton, Turton, and Darwen, the engineer's estimate for which is 752,000*l.*

SEWAGE WORKS, ACTON.—The Acton Sewage Bill, which will come before Parliament shortly, authorises the Urban District Council to construct sewage and outfall works, and to make further provision for the admission of sewage into the Metropolitan main drainage system for a portion of the district. The estimate of the engineers for the works is 51,000*l.*

BRIDGE, BRISTOL.—The engineer's estimate in connexion with works comprised in the Bristol Corporation Bill has been lodged in the Private Bill Office. For removing and rebuilding the bridge which now carried the Feeder-road over Nethern Lock, with the approaches, the estimate is 30,000*l.*

RAILWAY BRIDGE, SHEFFIELD.—The old wrought-iron bridge, near Attercliffe-road station, on the Midland Railway, has recently been replaced by one of greater strength and modern design. The new structure has been carried out under the supervision of Mr. John Brunton (the company's resident engineer), from plans prepared by Mr. J. A. Macdonald. The contractors for the steel were Messrs. Butterley & Co., of Derby; and Messrs. Charles Baker & Sons, Sheffield, contracted for the steel work.

MISCELLANEOUS.

PROFESSIONAL AND BUSINESS ANNOUNCEMENT.—Mr. W. Wonnacott, architect and surveyor, has removed from Berkeley House, Berkeley-square, to 119, Piccadilly, W.

BITTERNE, SOUTHAMPTON.—An historical spot, near the mouth of the river Itchen, is about to be returned to its pristine uses as a military station, having been acquired by the War Office for the erection of new barracks and the establishment of a military depôt for reservists and time-expired men. Bitterne Manor-house, near Northam bridge, stands on the site, in part, of Clausentum, which formed a chief naval and military station during the Roman occupation of Great Britain. The outer ditch and masonry, with looped walls, of the Roman fortress, and other remains of the camp, may still be traced, and large quantities of coins of the 1st-IVth centuries, implements, pavements, etc., have been frequently dug up. To Clausentum succeeded the Anglo-Saxon town, Hantune, where Canute sometimes resided.

THE VINERY, HAMPTON COURT PALACE.—By the King's command the vinery is in course of reconstruction upon an enlarged site. The tree was originally planted in the Privy Garden in 1768, being a slip from the Black Hamburgh vine at Valentines, near Ilford, which had been planted there ten years previously by Sir Charles Raymond, who then owned the estate. The Palace vine has a stem 115 ft. long, with a greatest girth of nearly 46 in. The removal of the paving stones from the floor of the old grape-house will, it is expected, result in benefit to the roots, and the tree is to be surrounded with a glass enclosure in order to protect it from dust and other accidental injury on the admission of visitors.

GRANITE IN ELBA.—In the annual report of Mr. Vice-Consul Tonietta to the Foreign Office the following passage occurs:—"The granite quarries on the southern coast of the island are worked on a large scale. A load of slabs expressly prepared for pavements or other work on roads has been forwarded to the Transvaal, and there are also large orders from London, Bombay, Calcutta, Madras, Cape Town, and Durban. The granite is not scarce, but hitherto nothing has been done to provide for the despatch of such great quantities, which need rapid and safe means of transport which is very difficult to obtain in the places where the quarries are situated, because the coast offers no shelter against the south-easterly and south-westerly winds, or against the unexpected rush of wind and sea that frequently comes from the Straits of Bonifacio."

DECORATIVE TRADES' EXHIBITION, EDINBURGH.—In connexion with the annual general meeting of the National Association of Master Painters in Scotland, which is to be held early in March, it has been decided to hold an exhibition of the decorative trades in the Waverley Market, Prince's-street, to be open from Wednesday, March 8, to Saturday, March 11. The exhibits will include wall papers and other wall and ceiling coverings; paints, varnishes, and enamels; textile fabrics and carpets; gas and electric fittings; metal and wood work; grates, marbles, tiles, and mosaic; modelled plaster; carton pierre, and every kind of decorative material.

PATENT OFFICE LIBRARY.—The authorities have just issued a bibliographical guide to works relating to the Fine and Graphic Arts, including photography, and art industries, in the library. The volume is compiled in the form of a "subject list," with its several headings based upon the contents, rather than the titles which, in many instances, are deficient or misleading, of the books as primarily catalogued. The list of subjects comprises building construction and materials, bricks and tiles, surveying and instruments, ceramics, glass and glass-making, decoration and ornament, iconology, ornamental alphabets, furniture, buhl-work and marquetry, cabinet-making, art education, art metal-work, bronze and bronzes, printing, book-binding, artistic anatomy, archæology, and biographies of artists. The numerous annotations and cross-references furnish full particulars of the methods adopted for classifying and grouping the books concerned, and inform the reader where he will readily find them in the library.

PARISH CHURCH, CARISBROOKE, I.W.—Mr. Thackeray Turner has made his report upon the fabric in respect of which a restoration fund will be opened. He states that the church is a structure of great beauty, with a fine Perpendicular tower, which is strong and sound, though the bells should be rehung, since ringing of them as now hung sets up strain and vibration, which is beginning to produce cracks in the masonry. The building, he says, is in sound state, the west wall of the porch excepted. Mr. Thackeray Turner recommends certain repairs and improvements, with the opening out of the tower arch and the west window by the removal of the organ and choir stalls to the east end. He is averse from the opening of the chancel arch and the building of a new chancel, as has been proposed by way of a memorial to the late Prince Henry of Battenberg, Governor of the Isle of Wight. The former chancel was pulled down to save the cost of its repair. Mr. Thackeray Turner points out that a new chancel would disfigure the church, and would be of but little use, since the chancel arch could not be more than 9 ft. 8 in. in the clear, and to alter it would be out of the question.

LICENSED VICTUALLERS' PREMISES AND THE NEW ACT.—Mr. James Green, whom the Local Government Board nominated as arbitrator, has issued his "initial valuation" award concerning the licensed property which it is alleged will be improved by the proposed widening of the south extremity of Hampstead-road where it meets Euston and Tottenham Court roads. Mr. Green computes the value, as land and premises of the Duke of Grafton public-house, at 36,375*l.*, and the site as commercial land at 5,000*l.*, or with the licence, at 17,250*l.*; the corresponding values for the Adam and Eve public-house he estimates at 51,875*l.*, 13,200*l.*, and 41,325*l.* respectively. The latter tavern, we may mention, is the successor of that which is depicted in Hogarth's "March of the Guards to Finchley" (1745), now in the Foundling Hospital.

THE IRON AND STEEL INDUSTRY.—Messrs. Matheson & Grant's Engineering Trades' Report states that after a time of doubt and depression, the New Year opens with many indications of reviving trade. The prices of pig-iron recorded in their report a year ago remained, with slight variations, till the middle of the year, but during the last few months there has been a decided rise, and contracts for future delivery point by their conditions to the expectation of a further advance. The makers of finished iron and steel, who regard pig-iron as their raw material, are struggling with adversity in their endeavour to obtain corresponding prices for their products. There are already signs favourable to their hopes. In the North of England, the improving prospects of the shipbuilders render probable an increased demand for material of all kinds, and therefore higher prices. In regard to steel rails, the present power of production is greatly in excess of present requirements. In the United States, the demand would for years to come equal the present supply, but there is always a tendency to increase prematurely the power of production. In Canada, the new Pacific line of the Grand Trunk Railway will call for large supplies during the next few years, and the Canadian

makers will be supported by tariffs, supplemented, if need be, by bounties, to keep the trade in the Dominion. The anxiety there to supply all the wheat required by Great Britain, does not go so far as to take rails and other staple products of this country in exchange. In regard to structural steelwork, the railway companies are all restricting their expenditure on renewals and extensions, but the work on bridges and stations that cannot be postponed has afforded a fair amount of employment during the past year. The use of steel in buildings is growing, but the designers endeavour, in the use of beams and sections, to leave a minimum of work after the steel is rolled. Great improvements have been made in the works carrying on this branch of engineering, not only in the use of the best labour-saving machinery, but in the sequence of operations and such systematising of departments and designs as will prevent the numerous leakages that absorb profits. An increased output capacity from works of a given area is also so obtained. Partly from these causes their capacity is at present in excess of the employment available, and anyone who believes in a coming revival of trade could, at the present time, obtain control of well-equipped works much below cost price.

IMPROVEMENTS AT BROMLEY.—Under their Bill, which will shortly be before Parliament, the local authority of Bromley contemplate making by-laws with regard to buildings, etc., and they ask that all new taverns, hotels, boarding-houses, and schools, where the building exceeds 35 ft. in height, shall be provided with means of escape from the upper stories in case of fire. A number of street widenings, etc., are scheduled, for which the engineer's estimate is 72,792*l*.

BRIDGE, LITTLEHAMPTON.—The Urban District Council of Littlehampton are asking Parliament this session for power to purchase the ferry rights over the river Arun at Littlehampton, and to construct a bridge over that river. The engineer's estimate of the cost is 14,000*l*.

Legal.

CASES UNDER THE LONDON BUILDING ACT, 1894.

AT the North London Police Court, on December 23, before Mr. E. Snow Fordham, Messrs. T. S. Elkington & Sons, of Romanroad, Bow, were summoned by Mr. W. G. Perkins, District Surveyor for West Hackney, for fixing a new shop-front at No. 514, Kingsland-road, without first serving a notice in writing, pursuant to the provisions of section 145 of the London Building Act, 1894.

The defendant contended that the work was one of necessary repair, and that they were in consequence exempted by the provisions of section 209 from giving notice.

The District Surveyor proved that the work consisted of a new shop-sash, new stall-board, and a new facia to the cornice, having a greater projection than the old facia, and that what had been done was more in the nature of an alteration in the shop-front to suit the purposes of a new tenant than a repair, and, in referring to sections 138, 145, 146, 73 (3 and 4) and 207, pointed out that stall-boards were frequently placed upon the public way, and unless proper notice was given, the District Surveyor was deprived of the opportunity of seeing the provisions of the Act complied with.

The magistrate held that the work was one for which notice should have been given, and fined the defendants 10s., with 12s. 6d. costs.

Messrs. Kearns & Stevens, of 581, Greenlanes, Harringay, were also summoned at the same time for putting in new shop-fronts to No. 68, Kingsland High-street, without giving notice, and were fined 20s., with 12s. 6d. costs.

THE NATIONAL SOCIETY AND THE BUILDING ACT.

AT Westminster, under the London Building Act, 1894, Mr. Francis was called upon to adjudicate and to make an order with respect to a site in Great Peter-street, Westminster, the National Society, as building owners, being dissatisfied with the decision of Mr. Drury, District Surveyor, with respect to certain work which he had ordered. Counsel for the National Society said that, under a charter of George III., they assisted in promoting the education of children of the poor in the principles of the Established Church. It was proposed to build more commodious premises in Great Peter-street, in lieu of those in Broad Sanctuary, and it was claimed that they carried on a retail business in the sale of educational works; this branch only represented about 30 per cent. of their turnover, and was altogether subsidiary to their office and counting-house work. Accordingly, they claimed exemption from the restriction which applied to domestic buildings. Mr. T. D. Dutton, for the District Surveyor, said that, though this was a perfectly friendly reference, the plans were misleading, as they indicated large shop space on the ground floor and basement. Mr. Drury, the Surveyor, was bound to give the notices, otherwise he would have really been responsible for any accident. Mr. Francis, after examining the plans, held that the building came within the exemption of the Building Act.—*The Times*.

TO CORRESPONDENTS.

NOTE.—The responsibility of signed articles, letters, and papers read at meetings rests, of course, with the authors.

We cannot undertake to return rejected communications; and the Editor cannot be responsible for drawings, photographs, manuscripts, or other documents, or for models or samples, sent to or left at this office, unless he has specially asked for them.

Letters or communications (beyond mere news items) which have been duplicated for other journals are NOT DESIRED.

All communications must be authenticated by the name and address of the sender, whether for publication or not. No notice can be taken of anonymous communications.

We are compelled to decline pointing out books and giving addresses.

Any commission to a contributor to write an article, or to execute or lend a drawing for publication, is given subject to the approval of the article or drawing, when received, by the Editor, who retains the right to reject it if unsatisfactory. The receipt by the author of a proof of an article in type does not necessarily imply its acceptance.

All communications regarding literary and artistic matters should be addressed to THE EDITOR; those relating to advertisements and other exclusively business matters should be addressed to THE PUBLISHER, and *not* to the Editor.

PATENTS OF THE WEEK.

APPLICATIONS PUBLISHED.*

26,425 of 1903.—N. S. ARTHUR: *Machine for Bending and Straightening Angle Irons, Tee Irons, Channel Irons, Rails, and other Metal Bars and Beams.*

A bending or straightening machine, characterised by three rollers, one of which is fixed in position, whilst the other two are capable of being moved through an arc of a circle in such manner as to bend the metal bar, rail, or beam round or upon the fixed roller, the said rollers being all arranged to revolve about their axes.

27,914 of 1903.—T. ROWDON: *Ventilating Gear for Greenhouses, and the like.*

Ventilating gear for greenhouses, and the like, consisting of a weight carried by a series of pivoted levers, one of which is curved and engages on a roller fixed to the underside of the ventilator, said weight being operated by a travelling bar and acting as a counterpoise when the ventilator is raised.

28,219 of 1903.—L. TAYLOR: *Kerbs, Fenders, and Fireplace Fittings.*

This invention relates to kerb fenders for fireplace fittings. The invention consists essentially in constructing kerbs or fenders with folding stops pivoted or otherwise attached thereto to fold inside or underneath the base, and preferably with a recess formed or cut in the base into which the stop may be folded to prevent injury thereto when packed up for transit.

411 of 1904.—J. B. BROOKS and D. ANSLOW: *Manufacture of T-Elbow and like Junction Fittings, for Pipes and Tubes.*

The manufacture or production of metallic T-junction fittings for pipes and tubes, which consists in first fashioning a roughly-formed blank of metal, when in a heated and soft state by drop stampings, or by dies and pressure, into a partly-formed fitting, then subsequently cross rolling up or gathering into a tubular form, the flattened or spread out metal part surmounting a tubular stem member, formed in the first stage of manufacture, and afterwards welding the joint.

1,138 of 1904.—A. T. HEYMANN: *Safety Device for Retaining Cabin and other Doors Ajar.*

A device for locking doors ajar, consisting in the combination with a retaining hook jointed to the door jamb, and adapted to engage with an eye on the door, of a locking plate jointed to the retaining hook, and slotted so as to be capable of entering into unlocking engagement with the suitably-shaped bolt of the door lock when said bolt is shot by means of the key.

1,633 of 1904.—H. MOORE: *Furniture Castors.*

A furniture castor, consisting in the combination of a divided socket made with an internal projection, and fixed to the castor plate, a vertical pivoted pin carrying the horn piece and castor bowl, and made with a groove with which the internal projection engages in such a way as to prevent the castor pin from falling out of the socket, but so as to allow the castor pin to turn freely and be withdrawn from the socket and reinserted therein to bear against the top of the socket.

2,820 of 1904.—F. L. AMES: *Fireproof Curtains for Theatres, and the like.*

This invention has reference to fireproof curtains, particularly adapted for use in theatres or similar structures. A fireproof blind or curtain, made in accordance with this invention, consists in knitting or weaving together fine metallic threads or wire with which may be incorporated some fireproof substance such as asbestos, or, if desired, two or more metallic threads composed of different metals may be woven or otherwise intermixed with one another. An important feature of this invention is that the threads of which the curtain is composed must be of that degree of fineness that they will be capable of being woven so closely that the said curtain when made will be air proof in construction.

2,838 of 1904.—F. L. AMES: *Dock Gates, Bridges, and similar Structures.*

This invention relates to dock gates, bridges, and similar structures. According to this invention an extensible hand-rail is provided which may be of telescopic, folding, or similar formation, so that when the dock gates are closed, said hand-rail can be readily extended across the same and will thus afford a support or guard for persons in crossing the gates. Or the said hand-rail may be flexible so as to be capable of rolling up at the ends of the dock gate when not required to be used. If necessary detachable or folding uprights may be provided for supporting the said hand-rail at intervals and for imparting thereto extra rigidity.

3,928 of 1904.—W. MATHIESON & WILSONS & MATHIESONS, LTD.: *Stoves, Fireplaces, or the like for Domestic or other Purposes.*

This invention relates to stoves, fireplaces, or the like for domestic and other purposes, and is particularly applicable to that class of stove, or the like, which is provided with a movable canopy for the purpose of regulating the size of the opening into the flue, or the like. In carrying out this invention, the canopy is of the usual construction, but in place of the base plate a finger or projection of suitable dimensions is attached on the interior of such canopy, by means of a screw or other convenient means, such finger projecting some little distance towards the fire back. The plates forming the sides of the stove, grate, or the like, are constructed as hitherto, with the exception that the top edges of said plates towards the front of the grate are so formed that the interior movable plate or head may be loosely pivoted thereon.

4,820 of 1904.—E. G. HARCOURT: *Fanlight and similar Opening and Closing Devices.*

Fanlight and similar opening and closing devices of the self-sustaining type, the combination comprising an arm or its equivalent, and means for reciprocating the same, mounted upon a support secured to the fixed framing, a socket piece in pivotal or rotatable connexion with the said arm, and a bar or stem piece projecting from the fanlight or movable part and adapted to slide within the said socket piece.

4,900 of 1904.—C. J. SYMONS: *Roofing Tiles.*

Roofing tiles having at one side a grooved rib projecting upwards above the face of the tile, and at the other or opposite side a covering flange having on its underface a downwardly or inwardly projecting tongue, the arrangement being such that, in laying the tiles, the covering flanges lie over the said grooved ribs, and the tongues of the covering flanges loosely take into the grooves of the ribs.

7,071 of 1904.—R. L. LOCKERBIE: *Means for Hanging Sashes.*

A telescoping roller, consisting of a hollow spindle, a supporting bearing for one end thereof, two circular flanges thereon forming

* All these applications are in the stage in which opposition to the grant of Patents upon them can be made.

a drum near said bearing, a spring surrounding said hollow spindle and secured by one end thereto, and by its other end to a case covering said hollow spindle, a locking bolt on said case adapted to enter a hole in one of said flanges, a loose spindle with one end adapted to enter said hollow spindle and with its other end to enter a sheath, a supporting bearing for one end of said sheath, two circular flanges on said sheath forming a drum, and a set screw to clamp said loose spindle to said sheath at a desired length.

21,109 of 1904.—V. MÜLLER: *Ceilings and Floors.*

A wood lathwork with "slip-in" tissue of non-metallic trellis work, intended to be placed between the iron beams of the ceilings and the outer plaster lining of these ceilings, so as to avoid the immediate contact of the iron with the plaster, and the consequent drawbacks.

23,181 of 1904.—J. W. SEIBERT: *Curtain Poles.*

A curtain pole divided longitudinally into two equal sections, reduced ends formed on each of the said sections, slots formed in a vertical position in each of the sections, the one slot directly opposite the other, and a clamp having downwardly extending prongs to engage with the slots formed in the pole, and a spring attached to the inside of one of the said prongs.

23,704 of 1904.—S. LEE: *A Castor for Chairs, or the like.*

This invention relates to castors, such as are fitted to legs of chairs, tables, or the like, and consists essentially in a ball race suitably secured to the leg, and in which are retained so as to rotate freely in any direction a suitable number of steel or other balls, which project downwards beyond the race so as to form the actual support of the chair, or the like.

23,720 of 1904.—A. J. BOULT (J. S. Metcalf & Co.): *Erection of Concrete Walls or Structures.*

This relates to erecting the wall of a structure by filling concrete into a mould, in a manner to render continuous the progress of erection, by a method which consists in raising the mould from underneath through the medium of jack screws or otherwise along the surfaces of its filling of concrete while the filling work is proceeding.

23,889 of 1904.—F. J. TALBOT: *A Ventilator for Buildings.*

A ventilator, consisting of an air guide having outwardly inclined sides, arranged at the upper part of a window, the bottom of which is provided with slots or other shaped holes.

23,985 of 1904.—P. GRÜNWALD and R. GRÜNWALD: *Hinges.*

An adjustable door or window hinge, in which the bolt carrying the weight of the door or the like, and serving as pivot, is provided on its lower end projecting out of the adjusting nut with a flat corresponding with a like flat formed on the lower shaped head, to the end of permitting of the adjustability of the bolt in its axial direction, whilst preventing its rotation either by the adjusting nut or by the frictional moments exerted by the movements of the door or window.

14,389 of 1904.—H. S. GERDES, JUN.: *Manufacture of Fuel Blocks or Briquettes.*

A process for the manufacture of fuel blocks or briquettes, which consists in mixing fresh peat earth or similar humous matter with anthracite coal or lignite in the shape of dust or slag, and either moulding the said mixture into suitable blocks or briquettes, and drying the latter, or drying the mixture completely or partly, then comminuting it and pressing it into briquettes or blocks.

2,768 of 1904.—S. SHEPHERD: *Joints, and the Construction and Setting of Tramway and other Rails.*

This invention, which relates more particularly to the joints of tramway rails, and the like rails, has for its object chiefly to prevent the sagging of one or both of the adjacent ends of the rails, while permitting of expansion and contraction. According to one arrangement, a broad slot is cut out of the web at each end of the rail, which forms, when the rails are put together, an elongated opening. The connecting plate, which is nearly the length of both slots, resembles two fish-plates joined by an intermediate web, which corresponds with, and will fit into, the said elongated slots. It is slid into position in one rail first, and then the next rail is similarly slid over the web of the projecting half, the slot, if longer than the connecting plate, may be filled with wood wedges if desired.

5,467 of 1904.—H. WEHNER: *Apparatus for Purifying Water.*

A process for purifying water by dividing the said water into drops or spray or fine particles which are caused to fall in a shower through a more or less air-tight chamber, the interior space of which is capable of being subjected to a partial vacuum.

MEETINGS.

FRIDAY, JANUARY 6.

Architectural Association.—Mr. A. Cox on "Libraries." 7.30 p.m.

London Institution.—Mr. Eric S. Bruce, M.A., on "Kites and Flying Machines." 4 p.m.

SATURDAY, JANUARY 7.

Junior Institution of Engineers.—Visit to the Voelker Incandescent Mantle Company's Factory, Albert Works, South-street, Wandsworth. 2.30 p.m.

The Incorporated British Institute of Certified Carpenters (Carpenters' Hall).—Mr. J. D. Manners on "A Visit to Chatham Naval Hospital." 6 p.m.

MONDAY, JANUARY 9.

Royal Institute of British Architects.—Adjourned discussion on the following papers:—"Building By-laws, especially in Rural Districts," by Mr. Lacy W. Ridge; and "Architectural Design and the London Building Act," by Mr. J. S. Gibson. 8 p.m.

Bristol Society of Architects.—Professor S. H. Capper on "Choisy's Researches in Ancient Building Construction." With Limelight Illustrations. 8 p.m.

Liverpool Architectural Society (Incorporated).—Mr. John Wilson on "The Palace of Versailles."

Glasgow Philosophical Society (Architectural Section).—Mr. J. D. Boyd on "The 'Reck' System of Heating." 8 p.m.

TUESDAY, JANUARY 10.

Institution of Civil Engineers.—Sir William Henry White, K.C.B., past-president, on "The Recent Visit to the United States and Canada." 8 p.m. [The address will be repeated on the following day at 3.30 p.m.]

Architectural Association Camera and Cycling Club.—Mr. W. M. Dodson on "St. David's Cathedral." 8 p.m.

Northern Architectural Association (Students' Sketching Club).—Mr. S. A. Smith on "Quantities." 7.30 p.m.

Institute of Sanitary Engineers, Ltd. (Lectures in Practical Sanitary Science).—7 p.m.

Cardiff, South Wales, and Monmouthshire Architects' Society.—Mr. E. Harding Payne on "Public Baths." 8 p.m.

WEDNESDAY, JANUARY 11.

Architectural Association Discussion Section.—Mr. W. D. Belcher on "The Regulations of Fire Insurance Companies." 7.30 p.m.

Edinburgh Architectural Association (Associates' Meeting).—8 p.m.

THURSDAY, JANUARY 12.

Leeds and Yorkshire Architectural Society.—Annual Dinner, Queen's Hotel. 7 p.m.

Institution of Electrical Engineers.—(1) Conclusion of discussion on "The Combination of Dust Destructors and Electricity Works Economically Considered," by Mr. W. P. Adams. (2) "Fuel Economy in Steam Power Plants," by Messrs. Wm. H. Booth and J. B. C. Kershaw. 8 p.m.

FRIDAY, JANUARY 13.

Institution of Civil Engineers (Students' Meeting).—Mr. James Swinburne on "Theory of Electricity and Magnetism." 8 p.m.

Junior Institution of Engineers (Westminster Palace Hotel).—Lecture (illustrated by Experiments and Lantern Slides) on "The Theory of the Incandescent Mantle," by Professor Vivian B. Lewes. 8 p.m.

PUBLISHER'S NOTICES.

Nat. Tel., 6112, Gerrard. Telegrams, "The Builder, London."

THE INDEX (with TITLE-PAGE) for VOLUME LXXXVII. (July to December, 1904) will be given as a supplement with the next issue.

CLOTH CASES for Binding the Numbers are now ready, price 2s. 6d. each; also

READING CASES (Cloth), with Strings, price 9d. each.

THE EIGHTY-SEVENTH VOLUME of "The Builder" (bound), price Twelve Shillings and Sixpence, will be ready on the 23rd inst.

SUBSCRIBERS' VOLUMES, on being sent to the Office, will be bound at a cost of 3s. 6d. each.

CHARGES FOR ADVERTISEMENTS.

COMPETITIONS, CONTRACTS, ALL NOTICES ISSUED BY CORPORATE BODIES, COUNTY AND OTHER COUNCILS, PROSPECTUSES OF PUBLIC COMPANIES, SALES BY TENDER, LEGAL ANNOUNCEMENTS, &c., &c.

Six lines or under ..... 6s. 0d.
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Four lines (about thirty words) or under ..... 2s. 6d.
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PREPAYMENT IS ABSOLUTELY NECESSARY.

*** Stamps *must not* be sent, but all sums should be remitted by Postal Orders, payable to J. MORGAN, and addressed to the Publisher of "THE BUILDER," Catherine Street, W.C.

Advertisements for the current week's issue are received up to THREE o'clock p.m. on THURSDAY, but "Classification" is impossible in the case of any which may reach the Office after HALF-PAST ONE p.m. on that day. Those intended for the Outside Wrapper should be in by TWELVE NOON on WEDNESDAY.

ALTERATIONS IN STANDING ADVERTISEMENTS or ORDERS TO DISCONTINUE same must reach the Office before TEN o'clock on WEDNESDAY MORNING.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, &c., left at the Office in reply to advertisements, and strongly recommends that of the latter COPIES ONLY should be sent.

PERSONS advertising in "THE BUILDER" may have *Replies addressed to the Office*, Catherine Street, Covent Garden, W.C., *free of charge*. Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage. Unused stamps are returned to advertisers the week after publication.

AN EDITION Printed on THIN PAPER, for FOREIGN and COLONIAL CIRCULATION, is issued every week.

READING CASES { NINEPENCE EACH. By post (carefully packed) 1s.

PRICES CURRENT OF MATERIALS.

*** Our aim in this list is to give, as far as possible, the *average* prices of materials, not necessarily the lowest. Quality and quantity obviously affect prices—a fact which should be remembered by those who make use of this information.

BRICKS, &c.

	£	s.	d.			
Hard Stocks	1	12	0	per 1000	alongside, in river.	
Rough Stocks and Grizzles	1	8	0	,,	,,	,,
Facing Stocks ...	2	5	0	,,	,,	,,
Shippers	2	5	0	,,	,,	,,
Flettons	1	8	0	,,	at railway depôt.	
Red Wire Cuts ...	1	14	0	,,	,,	,,
Best Fareham Red	3	12	0	,,	,,	,,
Best Red Pressed Ruabon Facing	5	0	0	,,	,,	,,
Best Blue Pressed Staffordshire ...	4	4	0	,,	,,	,,
Do. Bullnose	4	10	0	,,	,,	,,
Best Stourbridge Fire Bricks.....	4	8	0	,,	,,	,,
GLAZED BRICKS.						
Best White and Ivory Glazed Stretchers	12	0	0	,,	,,	,,
Headers	11	0	0	,,	,,	,,
Quoins, Bullnose, and Flats.....	16	0	0	,,	,,	,,
Double Stretchers	19	0	0	,,	,,	,,
Double Headers...	16	0	0	,,	,,	,,
One Side and two Ends	19	0	0	,,	,,	,,
Two Sides and one End	20	0	0	,,	,,	,,
Splays, Chamferred, Squints	20	0	0	,,	,,	,,
Best Dipped Salt Glazed Stretchers, and Header	12	0	0	,,	,,	,,
Quoins, Bullnose, and Flats.....	14	0	0	,,	,,	,,
Double Stretchers	15	0	0	,,	,,	,,
Double Headers...	14	0	0	,,	,,	,,
One Side and two Ends	15	0	0	,,	,,	,,
Two Sides and one End	15	0	0	,,	,,	,,
Splays, Chamferred, Squints	14	0	0	,,	,,	,,
Second Quality White and Dipped Salt Glazed	2	0	0		less than best.	

	s.	d.		
Thames and Pit Sand.....	7	0	per yard,	delivered.
Thames Ballast.....	6	0	,,	,,
Best Portland Cement	29	0	per ton,	,,
Best Ground Blue Lias Lime	20	0	,,	,,

NOTE.—The cement or lime is exclusive of the ordinary charge for sacks.

Grey Stone Lime.....12s. 0d. per yard, delivered.
Stourbridge Fireclay in sacks 27s. 6d. per ton at rly. dpt.

STONE.

	s.	d.		
BATH STONE—delivered on road waggons, Paddington Depôt	1	6½	per ft. cube.	
Do. do. delivered on road waggons, Nine Elms Depôt	1	8¾	,,	,,
PORTLAND STONE (20 ft. average)—				
Brown Whitbed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf...	2	1	,,	,,
White Basebed, delivered on road waggons, Paddington depôt, Nine Elms depôt, or Pimlico Wharf...	2	2½	,,	,,

	s.	d.		
Ancaster in blocks	1	1½	per ft. cube,	deld. rly. depôt.
Beer ,, ...	1	6	,,	,,
Greenshill ,, ...	1	10	,,	,,
Darley Dale in blocks...	2	4	,,	,,
Red Corsehill ,,	2	5	,,	,,
Closeburn Red Freestone	2	0	,,	,,
Red Mansfield ,,	2	4	,,	,,
YORK STONE—*Robin Hood Quality.*				
Scappled random blocks	2	10	,,	,,
6 in. sawn two sides landings to sizes (under 40 ft. super.)	2	3	per ft. super.	,,
6 in. rubbed two sides ditto, ditto	2	6	,,	,,
3 in. sawn two sides slabs (random sizes)	0	11½	,,	,,
2 in. to 2½ in. sawn one side slabs (random sizes)	0	7½	,,	,,
1½ in. to 2 in. ditto, ditto	0	6	,,	,,
HARD YORK—				
Scappled random blocks	3	0	per ft. cube.	,,
6 in. sawn two sides, landings to sizes (under 40 ft. super.)	2	8	per ft. super.	,,
6 in. rubbed two sides ditto	3	0	,,	,,
3 in. sawn two sides (slabs random sizes)	1	2	,,	,,
2 in. self-faced random flags	0	5	,,	,,

	s.	d.		
Hopton Wood (Hard Bed) in blocks	2	3	per ft. cube. deld. rly. depôt.	
,, ,, ,, 6 in. sawn both sides landings	2	7	per ft. super. deld. rly. depôt.	
,, ,, ,, 3 in. do.	1	2½	,,	,,

SLATES.

in.	in.	£	s.	d.		
20 × 10	best blue Bangor	13	2	6	per 1000 of 1200 at r. d	
20 × 12	,, ,,	13	17	6	,,	,,
20 × 10	first quality ,,	13	0	0	,,	,,
20 × 12	,, ,, ,,	13	15	0	,,	,,
16 × 8	,, ,, ,,	7	5	0	,,	,,
20 × 10	best blue Portmadoc	12	12	6	,,	,,
16 × 8	,, ,, .	6	12	6	,,	,,

PRICES CURRENT—*Continued on page 27.*

COMPETITIONS AND CONTRACTS.

(For some Contracts, &c., still open, but not included in this List, see previous issues.)

COMPETITIONS.

Nature of Work.	By whom Required.	Premiums.	Designs to be Delivered
*Sketch Plans for Four Artisans' Cottages	Wembley U.D.C.	3*l.* 3s.	Feb. 8
*Designs and Plans for New Public Elementary School	C.B. of Preston	50*l.*, 30*l.*, and 20*l.*	Feb. 28
*Designs for Municipal Buildings	Borough of Lambeth	.....	Mar. 30

CONTRACTS.

Nature of Work or Materials.	By whom Advertised.	Forms of Tenders, etc., supplied by	Tenders to be Delivered
Lighting Dudley Hill Council Schools by Electricity	Bradford Education Committee	W. Bailey, Tonfield-buildings, Market-street, Bradford	Jan. 9
Dining Room at the Belle Vue Schools	do.	Education Office (Architect's Department), Manor-road, Bradford	do
Paving Carriageway of Richard-st. with Jarrah Blks.	Finsbury Borough Council	Boro' Surveyor's Office, Finsbury Town Hall, Rosebery-av., E.C.	do.
Lantern Lights at Public Baths, Parkshot	Richmond Corporation	J. H. Brierley, Borough Surveyor, Town Hall, Richmond, Surrey	do.
Two Observation Blocks at Sanatorium, Hedon-road	Hull Corporation	J. H. Hirst, City Architect, Town Hall, Hull	do.
Repairs to Plaster, Walls etc., Down Cathedral	.....	Col. R. H. Wallace, C.B., 45, Victoria-street, Belfast	do.
Street Works, Llanbradach	Caerphilly U.D.C.	A. O. Harpur, Surveyor, Council Offices, Caerphilly	Jan. 10
Laundry Machinery	Killarney District Lunatic Asylum	L. F. Griffin, Medical Superintendent at the Asylum	do.
Rowley Rag and Blast Furnace Cinder	Perry Barr U.D.C.	H. H. Gammell, Sur., Council Hse., Green-la., Hamstead, nr. B'ham	do.
Iron Pontoon for Seacombe Ferry Landing Stage	Wallasey U.D.C.	Ferries Manager's Office, Egremont Ferry, Cheshire	do.
Gas Burners at Ouseburn Council Schools, Albion-row	Newcastle-on-Tyne Education Com.	A. Goddard, Sec., Educa. Offices, Northumberland-rd., Newcastle	do.
Materials, etc. (twelve months)	Lancaster Corporation	J. C. Mount, Borough Surveyor, Lancaster	do.
Cleaning Down, Painting, etc., Armley Brch. Library	Leeds Corporation	City Engineer's Office	Jan. 11
Cleaning Down, etc., Sheepscar, Hunslet, etc. Libraries	do.	do.	do.
Oak Furniture for Woodhouse Branch Library	do.	do.	do.
Furniture and Fittings for Headingley, etc., Libraries	do.	do.	do.
Pillar Posts for Fencing, etc.	Burma Railways Co.	A. G. Begbie, 76, Gresham House, Old Broad-street, E.C.	do.
Eyebolts and Strand Wire	do.	do.	do.
Portland Cement	do.	do.	do.
5,000 tons of Portland Cement	Blackpool Highways Committee	J. S. Brodie, Borough Engineer, Town Hall, Blackpool	do.
200 tons of Spalls	Woolwich Guardians	T. Cutter, Clerk, Union Offices, Woolwich	do.
Stores	Gt. Indian Peninsular Railway Co.	J. I. Berry, Secretary, 48, Copthall-avenue, London, E.C.	Jan. 12
Bridge Work	Burma Railways Co.	A. G. Begbie, 76, Gresham House, Old Broad-street, E.C.	do.
Electric Lighting of Workhouse, Wigan-road	Ormskirk Guardians	G. R. Peers, Engineer, 16, John Dalton-street, Manchester	do.
Laundry for Headqtrs. Homes for Children, Fishponds	Bristol Guardians	W. S. Skinner, Architect, Edinburgh-chbrs., Baldwin-st., Bristol	do.
Four Dwellings, Ferris Point Lighthouse, Larne	Commissioners of Irish Lights	O. Armstrong, Secretary, Irish Lights Office, Dublin	do.
Four Dwellings at Clifden, co. Galway	do.	do.	do.
4,000 yds of 2-in. metal Pipes and Laying	Seafield Estates, Rothes	Estate Office, Rothes, N.B.	do.
560 yds. of 2-in. Fireclay Pipes and Laying	do.	do.	do.
Concrete Cisterns for Wa. Sup. to Easter Elchies Hse.	do.	do.	do.
100 to 200 tons of Soft Timber	Chorlton & Manchester Wkhse. Com.	J. Macdonald, Poor Law Offices, New Bridge-street, Manchester	Jan. 13
National Schools, North William Street, Dublin	St. Vincent's Convent	A. B. Bruntz, C.E., 1, College-street, Dublin	Jan. 14
Business Premises, South-street, Elgin	.....	J. Wittet, Architect, Elgin	do.
Christchurch Part Sewer (220 lineal yds.)	Bexley U.D.C.	W. J. Lomax, Engineer, 11, Fold-street, Bolton	do
Sewer, Farnham-road Guildford	Guildford Town Council	C. G. Mason, Borough Surveyor, Tuns Gate, Guildford	Jan. 16
Winmarleigh-street Works	Warrington Paving, etc, Committee	T. Longdin, Borough Engineer, Town Hall, Warrington	do.
Alteration of Mosesfield House, Springburn	Glasgow Corporation	Office of Public Works, City-chambers, Glasgow	do.
10,000 yds. super. of Street Paving with Setts	Londonderry Borough Council	W. J. Robinson, City Surveyor, Guildhall, Londonderry	do.
Rebuilding the Angel Inn, Neath	Mr. E. Evans Bevan	J. Cook Rees, Architect, Neath	do.
Widening the Shore-road, Dunoon	Dunoon Town Council	J. Andrew, Burgh Surveyor, Dunoon	do.
Baptist Chapel and School, Glyncorrwg, Port Talbot	Rev. T. F. Williams	D. L. Evans, Architect, Blaengwynfy	do.
Sunday School, St. Catherine's, Canton, Cardiff	Rev. J. Baker	J. W. Rodger, 14, High-street, Cardiff	do.
Tramway Points and Crossings, etc.	Rochdale Corporation	S. S. Platt, Borough Surveyor, Town Hall, Rochdale	do.
*Valve House, etc., at Foleshill Works	Coventry Corporation Gas Com.	Engineer and General Manager, Gas Works, Coventry	do.
*Making-up Edgware-road	Hendon U.D.C.	Council's Engineer, Council Offices, Hendon, N.W.	do.
Four Homes for Female Patients, Bangour	Edinburgh District Lunacy Board	Hippolyte J. Blanc, Architect, 2, Rutland-square, Edinburgh	Jan. 17
Steel Superstructure, Cricklade-road Bridge, Swindon	Great Western Railway Co.	Engineer, Paddington Station	do.
Cast-Iron Water Tank for 60,000 gallons	Witney U.D.C.	F. J. D. Westell, Clerk, 28, Bridge-street, Witney	do.
*Construction of Sewers, etc.	Willesden District Council	Council's Engineer, Dyne-road, Kilburn, N.W.	do.
*New Boiler House, etc.	Chelsea Guardians	Clerk to the Guardians, 250, King's-road, Chelsea, S.W.	do.
Enlargement of Manor Park School	East Ham Education Committee	R. L. Curtis, Architect, 11 and 12, Finsbury-square, E.C.	Jan. 19
Roadworks, Naseby's Estate, Rugby	Rugby Benefit Building Society	J. T. Franklin, Architect, Regent-street, Rugby	do.
Steel Roadway Bridge over the Usk at Kemeys	Monmouth C.C.	J. J. Webster, Engineer, 39, Victoria-street, Westminster, S.W.	do.
Stores	Birmingham Public Works Com.	J. Price, City Surveyor, Council House, Birmingham	Jan. 20
Road Materials	do.	do.	do.
Carting Work	Elgin Town Council	A. A. Turriff, Burgh Surveyor, Elgin	Jan. 21
Removal of Partition, etc., at Regent-street School	Plymouth Education Authority	E. C. Cook, Education Offices, 18, Princess-square, Plymouth	do.
*Erection of Police Court, etc., at Lutterworth	Leicestershire C.C.	S. Perkins Pick, 6, Millstone-lane, Leicester	do.
Reconstruction of Brooks's Sewer, etc., Old Trafford	Manchester Corporation	City Surveyor's Office, Town Hall, Manchester	Jan. 23
Class-room, Whitehead National School	.....	A. H. M'Kibbin, Whitehead, Belfast	do.
*Footbridge and Approach Roads, etc.	Camberwell Borough Council	Borough Engineer, Town Hall, Camberwell	do.
*Sewerage and Sewage Disposal Scheme	Horsham R.D.C.	.....	do.
*Roadmaking, etc.	Beckenham U.D.C.	Council's Surveyor, Council Offices, Beckenham	do.
Roadwork and Plate-laying for Tramways	London C.C.	Chief Engineer, County Hall, Spring Gardens, S.W.	Jan. 24
*Public Elementary School, Senrab-street, Mile End	do.	Arch.'s (Edu.) Dept. (Room 148), Edu. Offices, Victoria-embank.	do.
*Restoration of 17, Fleet-street	do.	General Section, Architect's Department, 15, Pall Mall East, S.W.	do.
Lancashire Boiler, etc.	Swindon Corporation	J. G. Griffin, Engineer, Electricity Works, Swindon	do.
Steel Roofs for Engine, etc., Houses, Beaumont Leys	Leicester Corporation	E. G. Mawbey, Borough Engineer, Town Hall, Leicester	Jan. 25
Thirty-two Houses at Deri	Deri No. 2 Building Club	Bailey's Arms Hotel, Deri	do.
Council House and Library	Erdington U.D.C.	G. Kenwrick, F.S.I., 73, Colmore-row, Birmingham	do
Attendant's Messroom, etc., County Asylum, Rainhill	Lancashire Asylums Board	T. Wainwright, Clerk of Works, at the Asylum	Jan. 26
*Annual Contracts	Lambeth Borough Council	Borough Engineer, 346, Kennington-road, S.E.	do.
*Sewerage Works	Stroud R.D.C.	Fisher & Milnes, 6, Rowcroft, Stroud	do.
*Erection of Council House and Library	Erdington U.D.C.	G. Kenwrick, 73, Colmore-row, Birmingham	Jan. 28
Electric Lighting, etc., Read's Grammar School, Drax	.....	W. St. G. Drennan, at the School, Drax, near Selby	do.
Stores (Marham Waterworks Scheme)	Harrogate Corporation	E. W. Dixon, Engineer, 14, Albert-street, Harrogate	do.
Granite and Slag	Hertfordshire County Council	N. A. Smith, County Surveyor, Hatfield	do.
*Fire Escape Staircase, etc.	Blything Union	Union Offices, Bulcamp, Halesworth	Jan. 30
*Construction of Two Bridges	Chertsey R.D.C.	R. St. Georgemoore, 17, Victoria-street, S.W.	do.
Painting Works	Lancashire and Yorkshire Rly. Co.	Engineer's Office, Hunt's Bank, Manchester	Feb. 6
Reservoir, Wilford-hill	Nottingham Water Committee	F. W. Davies, Water Engineer, St. Peter's-square, Nottingham	Feb. 13
Hydraulic Coaltip, Port Talbot Docks	Port Talbot Railway and Docks Co.	E. Knott, Secretary, Port Talbot	No date.
*Granite Setts	Capetown Corporation	Davis & Soper, 54, St. Mary Axe, E.C.	do.

Those marked with an (*) are advertised in this number. *Competitions*, iv. *Contracts*, iv. vi. viii. x.

PRICES CURRENT—*Continued from page 25.*

SLATES (*continued*).

in.	in.	£	s.	d.		
20 x 10	best Eureka unfading green .	15	17	6	per 1000 of 1200 at	r. d.
20 x 12	„ „	18	7	6	„	„
18 x 10	„ „	13	5	0	„	„
16 x 8	„ „	10	5	0	„	„
20 x 10	permanent green	11	12	6	„	„
18 x 10	„ „	9	12	6	„	„
16 x 8	„ „	6	12	6	„	„

TILES.

	s.	d.		
Best plain red roofing tiles .	42	0	per 1000 at	rly. depôt.
Hip and Valley tiles ...	3	7	per doz.	„ „
Best Brosely tiles.....	50	0	per 1000	„ „
Do. Ornamental tiles	52	6	„	„ „
Hip and Valley tiles ...	4	0	per doz.	„ „
Best Ruabon red, brown, or brindled do. (Edwards)	57	6	per 1000	„ „
Do. Ornamental do	60	0	„	„ „
Hip tiles	4	0	per doz.	„ „
Valley tiles	3	0	„	„ „
Best Red or Mottled Staffordshire do. (Peakes).....	51	9	per 1000	„ „
Do. Ornamental do.....	54	6	„	„ „
Hip tiles	4	1	per doz.	„ „
Valley tiles	3	8	„	„ „
Best "Rosemary" brand plain tiles.....	48	0	per 1000	„ „
Best Ornamental tiles	50	0	„	„ „
Hip tiles	4	0	per doz.	„ „
Valley tiles	3	8	„	„ „
Best "Hartshill" brand plain tiles, sand faced.	50	0	per 1000	„ „
Do. pressed.....	47	6	„	„ „
Do. Ornamental do	50	0	„	„ „
Hip tiles	4	0	per doz.	„ „
Valley tiles	3	6	„	„ „

WOOD.

	At per standard. £	s.	d.		£	s.	d.
Deals: best 3 in. by 11 in. and 4 in. by 9 in. and 11 in	15	10	0		16	10	0
Deals: best 3 by 4.....	14	10	0		15	10	0
Battens: best 2½ in. by 7 in. and 8 in., and 3 in. by 7 in. and 8 in.	11	10	0		12	10	0
Battens: best 2½ by 6 and 3 by 6 ..	0	10	0	less than 7 in. and 8 in.			
Deals: seconds	1	0	0	less thn best			
Battens: seconds	0	10	0	„ „ „			
2 in. by 4 in. and 2 in. by 6 in....	9	0	0		9	10	0
2 in. by 4½ in. and 2 in. by 5 in....	8	10	0		9	10	0
Foreign Sawn Boards—							
1 in. and 1¼ in. by 7 in.	0	10	0	more than battens.			
¾ in.	1	0	0	„			

	At per load of 50 ft.					
Fir timber: best middling Danzig or Memel (average specification)	4	10	0		5	0	0
Seconds	4	5	0		4	10	0
Small timber (8 in. to 10 in.) ...	3	12	6		3	15	0
Small timber (6 in. to 8 in.)	3	0	0		3	10	0
Swedish balks	2	15	0		3	0	0
Pitch-pine timber (30 ft. average)	3	5	0		3	15	0

Joiners' Wood.	At per standard.					
White Sea: first yellow deals, 3 in. by 11 in	23	0	0		24	0	0
3 in. by 9 in.	21	0	0		22	10	0
Battens, 2½ in. and 3 in. by 7 in.	17	0	0		18	10	0
Second yellow deals, 3 in by 11 in.....	18	10	0		20	0	0
„ „ 3 in. by 9 in.	17	10	0		19	0	0
Battens, 2½ in. and 3 in. by 7 in.	13	10	0		14	10	0
Third yellow deals, 3 in. by 11 in. and 9 in.	15	10	0		16	10	0
Battens, 2½ in. and 3 in. by 7 in.	11	10	0		12	10	0
Petersburg: first yellow deals, 3 in. by 11 in.	21	0	0		22	10	0
Do. 3 in. by 9 in.....	18	0	0		19	10	0
Battens.....	13	10	0		15	0	0
Second yellow deals, 3 in. by 11 in.	16	0	0		17	0	0
Do. 3 in. by 9 in.....	14	10	0		16	0	0
Battens.....	11	0	0		12	10	0
Third yellow deals, 3 in. by 11 in.	13	10	0		14	0	0
Do. 3 in. by 9 in.....	13	0	0		14	0	0
Battens.....	10	0	0		11	0	0
White Sea and Petersburg :—							
First white deals, 3 in. by 11 in.	14	10	0		15	10	0
„ „ 3 in. by 9 in.	13	10	0		14	10	0
Battens	11	0	0		12	0	0
Second white deals, 3 in. by 11 in.	13	10	0		14	10	0
„ „ 3 in. by 9 in.	12	10	0		13	10	0
„ „ battens	9	10	0		10	10	0
Pitch-pine: deals.....	16	10	0		20	0	0
Under 2 in. thick extra	0	10	0		1	0	0
Yellow Pine—First, regular sizes	40	0	0	upwards.			
Oddments	28	0	0	„			
Seconds, regular sizes.....	30	0	0	„			
Yellow Pine oddments	25	0	0	„			
Kauri Pine—Planks, per ft. cube .	0	3	6		0	5	0
Danzig and Stettin Oak Logs—							
Large, per ft. cube	0	2	6		0	3	6
Small „ „	0	2	3		0	2	6
Wainscot Oak Logs, per ft. cube.	0	5	0		0	5	6
Dry Wainscot Oak, per ft. sup. as inch	0	0	8		0	0	9
¾ in. do. do.	0	0	7		—		
Dry Mahogany—Honduras, Tabasco, per ft. super. as inch ...	0	0	9		0	1	0
Selected, Figury, per ft. sup. as inch	0	1	6		0	2	6
Dry Walnut, American, per ft. sup. as inch	0	0	10		0	1	0
Teak, per load	17	0	0		21	0	0
American Whitewood Planks, per ft. cube.....	0	4	0		—		

Prepared Flooring—	Per square.					
1 in. by 7 in. yellow, planed and shot	0	13	6		0	17	6
1 in. by 7 in. yellow, planed and matched	0	14	0		0	18	0
1¼ in. by 7 in. yellow, planed and matched	0	16	0		1	0	0
1 in. by 7 in. white, planed and shot	0	12	0		0	14	6
1 in. by 7 in. white, planed and matched	0	12	6		0	15	0
1¼ in. by 7 in. white, planed and matched	0	15	0		0	16	6

WOOD (*continued*).

Prepared Flooring (*continued*)—	Per square. £	s.	d.		£	s.	d.
¾ in. by 7 in. yellow, matched and beaded or V-jointed brds.	0	11	0		0	13	6
1 in. by 7 in. do. do.	0	14	0		0	18	0
¾ in. by 7 in. white do. do.	0	10	0		0	11	6
1 in. by 7 in. do. do.	0	11	6		0	13	6

6 in. at 6d. to 9d. per square less than 7 in.

JOISTS, GIRDERS, &c.

	In London, or delivered Railway Vans, per ton. £	s.	d.		£	s.	d.
Rolled Steel Joists, ordinary sections	5	15	0	...	6	15	0
Compound Girders, ordinary sections	7	12	6	...	8	15	0
Angles, Tees and Channels, ordinary sections	7	7	6	...	8	7	6
Flitch Plates	7	15	0	...	8	5	0
Cast Iron Columns and Stanchions including ordinary patterns	6	12	6	...	7	15	0

METALS.

	Per ton, in Londor. £	s.	d.		£	s.	d.
Iron—							
Common Bars	6	15	0	...	7	5	0
Staffordshire Crown Bars, good merchant quality.....	7	5	0	...	7	15	0
Staffordshire "Marked Bars"	9	10	0	...	—		
Mild Steel Bars.....	8	5	0	...	8	15	0
Hoop Iron, basis price	8	15	0	...	9	0	0
„ „ Galvanized	16	10	0	...	—		
(*And upwards, according to size and gauge.)							
Sheet Iron, Black—							
Ordinary sizes to 20 g.	9	0	0	...	—		
„ „ 24 g.	10	0	0	...	—		
„ „ 26 g.	11	15	0	...	—		
Sheet Iron, Galvanised, flat, ordinary quality—							
Ordinary sizes—6 ft. by 2 ft. to 3 ft. to 20 g.....	12	0	0	...	—		
Ordinary sizes to 22 g. and 24 g.	12	10	0	...	—		
„ „ 26 g.	13	10	0	...	—		
Sheet Iron, Galvanised, flat, best quality—							
Ordinary sizes to 20 g.	15	0	0	...	—		
„ „ 22 g. and 24 g.	15	10	0	...	—		
„ „ 26 g.	17	0	0	...	—		
Galvanised Corrugated Sheets—							
Ordinary sizes 6 ft. to 8 ft. 20 g.	12	0	0	...	—		
„ „ 22 g. and 24 g.	12	10	0	...	—		
„ „ 26 g.	13	5	0	...	—		
Best Soft Steel Sheets, 6 ft. by 2 ft. to 3 ft. by 20 g. and thicker	11	0	0	...	—		
Best Soft Steel Sheets, 22 g. & 24 g.	12	0	0	...	—		
„ „ „ 26 g.....	13	5	0	...	—		
Cut nails, 3 in. to 6 in.....	8	10	0	...	9	0	0
(Under 3 in., usual trade extras.)							

LEAD, &c.

	Per ton, in London. £	s.	d.		£	s.	d.
Lead—Sheet, English, 3lb. and up	15	12	6	...	—		
Pipe in coils	16	2	6	...	—		
Soil pipe	18	12	6	...	—		
Compo pipe.....	18	12	6	...	—		
Zinc—Sheet—							
Vieille Montagne .....ton	30	15	0	...	—		
Silesian.....	30	10	0	...	—		
Copper—							
Strong Sheet.....per lb.	0	0	10	...	—		
Thin „ ..... „	0	0	11	...	—		
Copper nails ..... „	0	0	10	...	—		
Brass—							
Strong Sheet..... „	0	0	9½	...	—		
Thin „ ..... „	0	0	10	...	—		
Tin—English Ingots ..... „	0	1	4½	...	—		
Solder—Plumbers' ..... „	0	0	6½	...	—		
Tinmen's..... „	0	0	8	...	—		
Blowpipe..... „	0	0	9	...	—		

ENGLISH SHEET GLASS IN CRATES.

15 oz. thirds	2⅝d. per ft. delivered.
„ fourths.....	2d. „ „
21 oz. thirds	3⅛d. „ „
„ fourths.....	3d. „ „
26 oz. thirds	4⅛d. „ „
„ fourths.....	3⅞d. „ „
32 oz. thirds	5⅛d. „ „
„ fourths.....	5d. „ „
Fluted Sheet, 15 oz.....	3⅛d. „ „
„ 21 oz.....	4⅛d. „ „
½ Hartley's Rolled Plate	2d. „ „
⅛ „ „ „	2⅛d. „ „
¼ „ „ „	2⅛d. „ „

OILS, &c.

		£	s.	d.
Raw Linseed Oil in pipes	per gallon	0	1	5
„ „ „ in barrels	„	0	1	6
„ „ „ in drums.....	„	0	1	8
Boiled „ „ in pipes	„	0	1	7
„ „ „ in barrels	„	0	1	8
„ „ „ in drums.....	„	0	1	10
Turpentine, in barrels	„	0	3	4
„ in drums.....	„	0	3	6
Genuine Ground English White Lead	per ton	19	15	0
Red Lead, Dry	„	19	5	0
Best Linseed Oil Putty	per cw	0	6	6
Stockholm Tar	per barre	1	12	0

VARNISHES, &c.

	Per gallon. £	s.	d.
Fine Pale Oak Varnish	0	8	0
Pale Copal Oak	0	10	6
Superfine Pale Elastic Oak	0	12	6
Fine Extra Hard Church Oak.....	0	10	0
Superfine Hard-drying Oak, for seats of Churches	0	14	0
Fine Elastic Carriage.....	0	12	6
Superfine Pale Elastic Carriage	0	16	0
Fine Pale Maple	0	16	0
Finest Pale Durable Copal	0	18	0
Extra Pale French Oil	1	1	0
Eggshell Flatting Varnish	0	18	0
White Copal Enamel	1	4	0
Extra Pale Paper	0	12	0
Best Japan Gold Size	0	10	6
Best Black Japan.....	0	16	0
Oak and Mahogany Stain	0	9	0
Brunswick Black	0	8	6
Berlin Black	0	16	0
Knotting	0	10	0
French and Brush Polish	0	10	0

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TENDERS.

Communications for insertion under this heading should be addressed to "The Editor," and must reach us *not later than* 10 *a.m. on Thursdays.* [N.B.—We cannot publish Tenders unless authenticated either by the architect or the building-owner; and we cannot publish announcements of Tenders accepted unless the amount of the Tender is stated, nor any list in which the lowest Tender is under 100*l.*, unless in some exceptional cases and for special reasons.]

* Denotes *accepted.* † Denotes *provisionally accepted.*

ABERMORLAIS. — For erecting head-teachers' rooms, for Merthyr Tydfil Urban District Council Education Committee. Mr. J. Llewellin Smith, architect:—
E. P. Davies, 6, Broad-street, Dowlais £198

BIDBOROUGH.—For laying and jointing one mile of 3-in. water main, for the Tonbridge Rural District Council. Mr. F. Harris, Engineer and Surveyor, Broadway, Southborough, Tunbridge Wells:—

	Per Lineal Yard. s.	d.		Per Lineal Yard. s.	d.
J. Carley	{ 3	4‡	A. Sheeter & Co...	1	8
	{ 3	2§	A. E. Nunn	1	7
R. O. Jarvis.....	2	10	T. Hallett & Sons..	1	6
F. H. Bingham ..	2	10½	J. Roop, Tonbridge*	1	4
Leney & Son	2	4			
J. Crates & Son	{ 2	2¾‡			
	{ 1	9½§			

‡ 4-in. § 3-in.

BRISTOL.—For pulling down old buildings and the formation of roads and sewers at the Horfield Court Farm estate, for Mr. G. Humphreys, Carnarvon-road, Redland, Bristol. Mr. W. P. Saunders, architect and surveyor, Rupert Chambers, Quay-street, Bristol:—

T. Free & Co.	£1,838	15	11	Mereweather & Sons ..	£1,317 0 0
J. Dare & Co.	1,799	0	0	Wilkins & Gosling, Ashley-rd.*	1,300 0 0
J. Hatherley	1,733	0	0	W. Brindon .	1,055 0 0
G. Tyler....	1,600	0	0	M. Parker‡ .	950 0 0
W. & J. Bennett	1,395	0	0		

‡ Withdrawn.

CHADWELL HEATH.—For the erection of shop and private house at Chadwell Heath, Essex. Mr. Herbert Riches, architect, 3, Crooked-lane, King William-street, London, E.C.:—

Sheffield Bros...	£1,295	0	Dowsing & Davis £1,090 0
Osborn & Sons	1,149	0	
F. & A. Willmott	1,099	0	Clemens Bros... 1,050 10

CHELTENHAM.—For erecting four iron fire escape staircases at the workhouse, for the Guardians. Mr. J. Villar, architect, 2, Essex-place, Cheltenham:—

J. Hall & Son	£235	0 0	J. Hitchen & Son, Ltd. .. £162 10 0
Haward Bros...	205	0 0	St. Pancras Iron Work Co. .. 156 0 0
Lion Foundry Co., Ltd. ..	202	0 0	G. Wright & Co. 153 0 0
W. A. Baker & Co., Ltd. ..	196	0 0	Boneford & Evershed .. 147 10 0
W. Cresswell ..	173	10 6	Cadogan Ironworks 146 10 0
W. Letheren & Sons	168	0 0	Hancock & Son 142 10 0
Collins & Godfrey	167	5 9	R. E. & C. Marshall 140 0 0
Herring & Son	167	0 0	

CHERTSEY.—For club-house, for the Chertsey Golf Club. Mr. T. H. Nixon, architect, 116, Upper Tulse-hill, S.W.:—

G. Gray	£779	J. Harris, Laleham*..	£520
J. Hayney	700	A. Jordan‡	518

‡ With reservations.

COLERAINE.—For building a technical school, for the Urban District Council. Messrs. W. & M. Given, architects, Diamond, Coleraine:—
W. Gould & Co., Coleraine*..... £1,481 9 3

EDMONTON.—For the erection of a new Section House at Edmonton. Mr. J. Dixon Butler, Surveyor to the Metropolitan Police, New Scotland Yard, architect. Quantities by Messrs. Thurgood, Son, & Chidgey, Charing-cross-chambers, Duke-street, Adelphi, W.C.:—

A. Hood.....	£4,200	A. Monk	£3,650
Holloway Brothers.	3,829	Willmott & Sons ..	3,649
C. Ansell	3,821	Stapleton & Son ..	3,636
Grover & Sons	3,796	Higgs & Hill.....	3,588
Spiers & Son.....	3,748	Fairhead & Son ..	3,284
W. Eyre.....	3,722	Lawrance & Son ..	3,274
Lascelles & Co.....	3,720	Knight & Son	3,227
Lathey Brothers ..	3,669		

HANDSWORTH.—For laying 600 yds. of sewers, etc., for the Urban District Council. Mr. H. Richardson, Engineer and Surveyor, Council House, Handsworth:—
S. Wood, Union-row, Handsworth* .. £469 18 4

HENDON.—For portable fire escape shed, for the Urban District Council. Mr. S. Slater Grimley, A.M.I.C.E., Engineer and Surveyor:—

R. Iles, Ltd.	£193	0	A. E. Brown‡ .. £106 5
G. Hudgell.....	137	0	Turpie Bros. 104 0
R. Lisles.....	131	10	F. Smith & Co. .. 99 0
Humphreys, Ltd.	127	0	T. Pearce 97 0
J. McManus	116	0	W. H. Pecover, Marylebone§ .. 87 0
W. Glover & Sons	113	0	
W. Harbrow	111	0	

‡ Patent construction ("Frazzi"), including foundations.

§ Recommended for acceptance.

HULL.—For work in connexion with the basement and shops facing Waterworks-street and Carr-lane (part of Public Hall), for the Property Committee of the Corporation. Mr. J. H. Hirst, City Architect, Town Hall, Hull. Quantities by City Architect :—

J. Sangwin	£15,952 10 1½	T. Goates..	£15,290 0 0
Bowman & Sons....	15,650 0 0	Hebblewhite & Wilson..	15,268 15 9
H. Arnold & Son ..	15,460 0 0	G. H. Panton, Anlaby-rd., Hull* ..	15,268 15 9
E. Good & Sons....	15,450 0 0		
F. Beilby ..	15,299 0 0		

LONDON.—For repairs and decorations to five shops at Lower Clapton, N.E. Mr. Herbert Riches, architect, 3, Crooked-lane, King William-street, London, E.C. :—
J. T. Robey* £828

LONDON.—For repairs and decorations to two shops at Lower Clapton, N.E. Mr. Herbert Riches, architect, 3, Crooked-lane, King William-street, London, E.C. :—
A. W. Derby* £151

LONDON.—For alterations and interior fittings to 240, High-road, Lee, S.E., for the London & South Western Bank, Ltd. Mr. C. L. Morgan, architect, 43, Cannon-street, E.C., and 2, Station-chambers, Haslemere, Surrey :—

Lascelles & Co.....	£1,297	General Builders, Ltd.	£1,087
Courtney & Fairbairn	1,145	J. Grover & Son*..	1,067

LONDON.—For the erection of new Baptist Church, Shooters Hill-road, Blackheath. Mr. S. S. Dottridge, Albert-buildings, Queen Victoria-street, and Messrs. Thompson & Walford, Leadenhall-buildings, joint architects :—

F. & H. F. Higgs..	£6,900	W. Akers & Co. ..	£6,163
Higgs & Hill.....	6,444	Holt & Sons	6,150
Holliday & Greenwood	6,377	Wallis & Sons	6,144
Kennard Bros.....	6,328	J. & H. Roberts ..	6,139
J. & C. Bowyer ..	6,280	Batley, Son, & Holness	5,987
J. & W. Falkner & Sons	6,210	Patman & Fotheringham‡	5,983

‡ Recommended for acceptance.

LONDON.—For roads and sewers, Golders Green, N.W. (first portion), for the Golders Green (Finchley-road) Estate, Limited. Mr. H. J. S. Abrams, surveyor :—

W. Neave & Son..	£4,425	E. Rogers & Co. ..	£4,235
J. Mowlem & Co. Ltd.	4,405	T. Adams	4,114
S. Kavanagh & Co.	4,377	R. Ballard, Ltd.* ..	3,950

MARKET HARBOROUGH.—For constructing sewerage works from Northampton-road to Farndon-road and Coventry-road, for the Urban District Council. Mr. H. G. Coales, Engineer, Council Offices, Northampton-road, Market Harborough. Quantities by Engineer :—

G. R. Hull..	£1,224 4 7	A. Palmer..	£948 18 7
Langley, Hard, & Johnson..	1,109 3 4	C. A. Christie	925 18 11
Siddons & Freeman .	1,066 13 4	E. & T. Smith	924 17 5½
H. H. Barry	1,060 13 3	G. H. Eastwood	904 12 11
Kirk & Dobson.....	1,047 7 6	E. Haycock & Sons....	879 2 4
B. E. & E. H. Philbrick .	1,047 1 0	A. Jewell, Little Bowden*	849 5 0
J. Holme & Sons	1,002 7 0	T. Panter & Son.....	806 7 2

[Engineer's estimate, £865.]

NORBITON (Surrey).—For residence, stabling, etc., for Mr. Arthur Billings. Plans, specification, and quantities by Mr. W. G. Tutt, surveyor, 18, Ironmonger-lane, E.C. :—

T. Roberts & Co. ..	£3,970	Martin	£3,780
Penny & Co.....	3,955	Green & Co.....	3,777
Jones	3,890	Baker.....	3,690
Adams	3,799	Braid & Co.*.....	3,672

PETERHEAD (Scotland).—Accepted for erecting an Infectious Diseases Hospital, for the Town Council. Mr. T. H. Scott, Architect, Town House, Peterhead :—

Masons : W. Stuart & Son, St. Mary-street, Peterhead	£1,799 0 0
Carpenters : G. Scott & Son, St. Mary-street, Peterhead	728 15 0
Plumber : J. Davidson, 34, Erroll-street, Peterhead	448 18 0
Plasterer : A. Kelman, York-street, Peterhead.....	277 15 0
Slater : J. Greig, 5, Windmill-street, Peterhead.....	200 0 0
Painter and Glazier : W. G. Calder, 19, Queen-street, Peterhead	108 6 8

The whole work will be completed £30 of the estimate, viz., £4,000.

PONTYPRIDD.—For alterations and additions to the Girls' and Infants' Departments of Coedpenmaen School, for the Pontypridd Urban District Council. Mr. P. R. A. Willoughby, Surveyor to Council :—
E. B. Smith Jones, Pontypridd* .. £1,344 10

REIGATE.—For street works in Blandford and Crakell-roads, for the Town Council. Mr. F. T. Clayton, Borough Surveyor, Municipal Buildings, Reigate :—

A. Streeter & Co.	£1,049 0 0	Cunningham-Forbes & Co.	£899 11 7
A. C. Soan ..	1,032 10 0	Fry Brothers ..	892 1 8
J. G. Pickard	972 2 9	H. Streeter & Co.	810 0 0
E. Iles	965 18 0	S. Kavanagh & Co., Surbiton Hill*	755 0 0
F. Thacker ..	937 1 1		
G. S. Faulkner	919 15 0		
J. May	900 0 0		

STAINES.—For sewering Ruskin-road, for the Urban District Council. Mr. E. J. Barrett, Engineer and Surveyor, Town Hall, Staines :—

S. Kavanagh & Co.	£240 7	G. Wimpey & Co.	£164 17
C. Mott & Sons ..	212 16	W. H. Augur, Staines*	158 10
W. H. Wheeler..	205 17		

[Surveyor's estimate, £163.]

WALSALL. — For repairs and maintenance of paving to playgrounds at schools, for the Education Committee. Mr. H. H. McConnal, architect, Bridge-street, Walsall :—
W. Shepherd, Rochdale, initial payment .. £370 0 0
Annual payment for 12 years' maintenance 79 17 4

WOKING.—For bungalow residence at St. John's, Woking, for Mr. Joseph Martyr. Mr. H. G. Gribble, architect, St. John's :—

Harris & Son	£1,060	Drowley & Co.....	£700
J. Whitburn.....	1,000	W. W. Gale*	585

[Architect's estimate, £575.]

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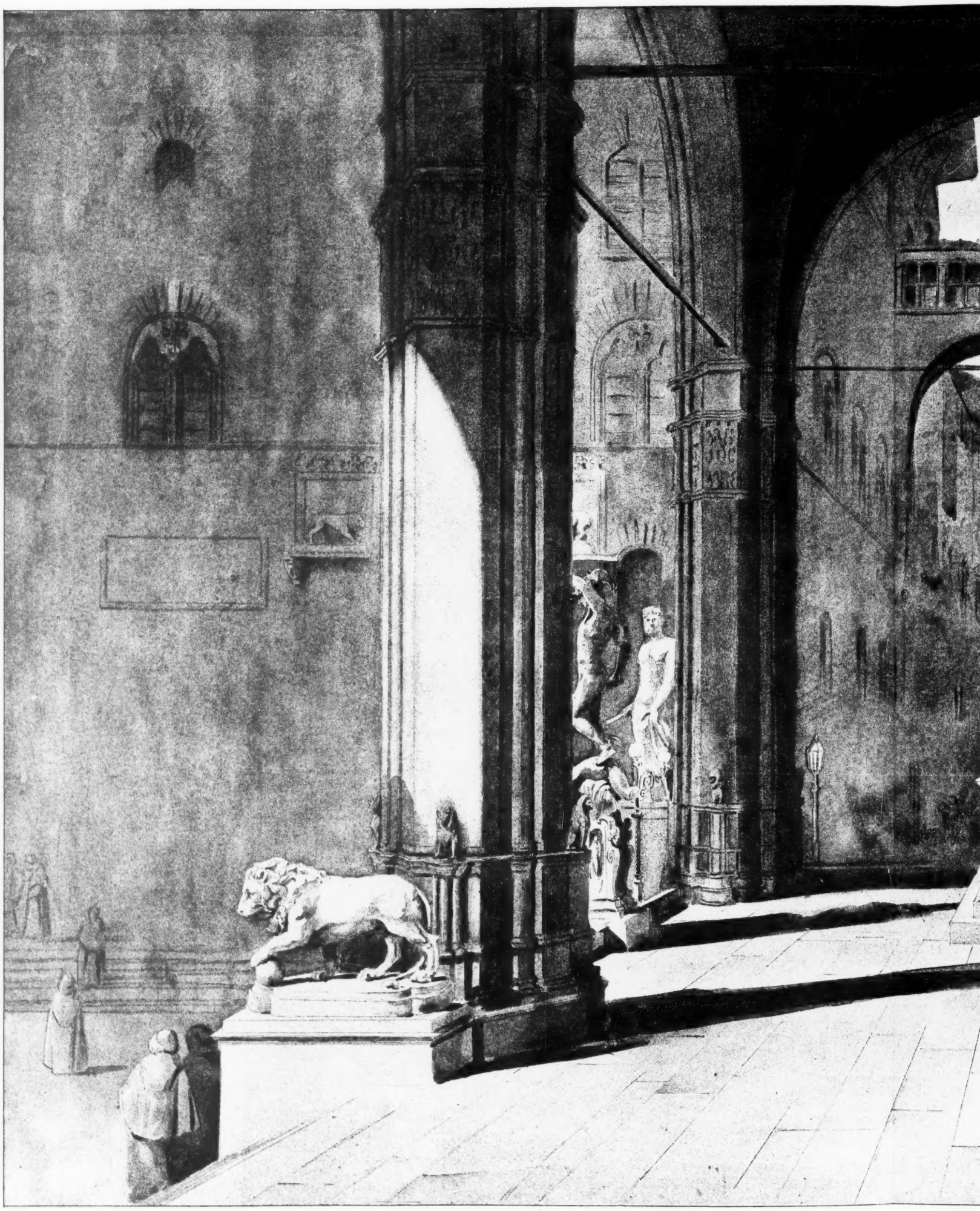
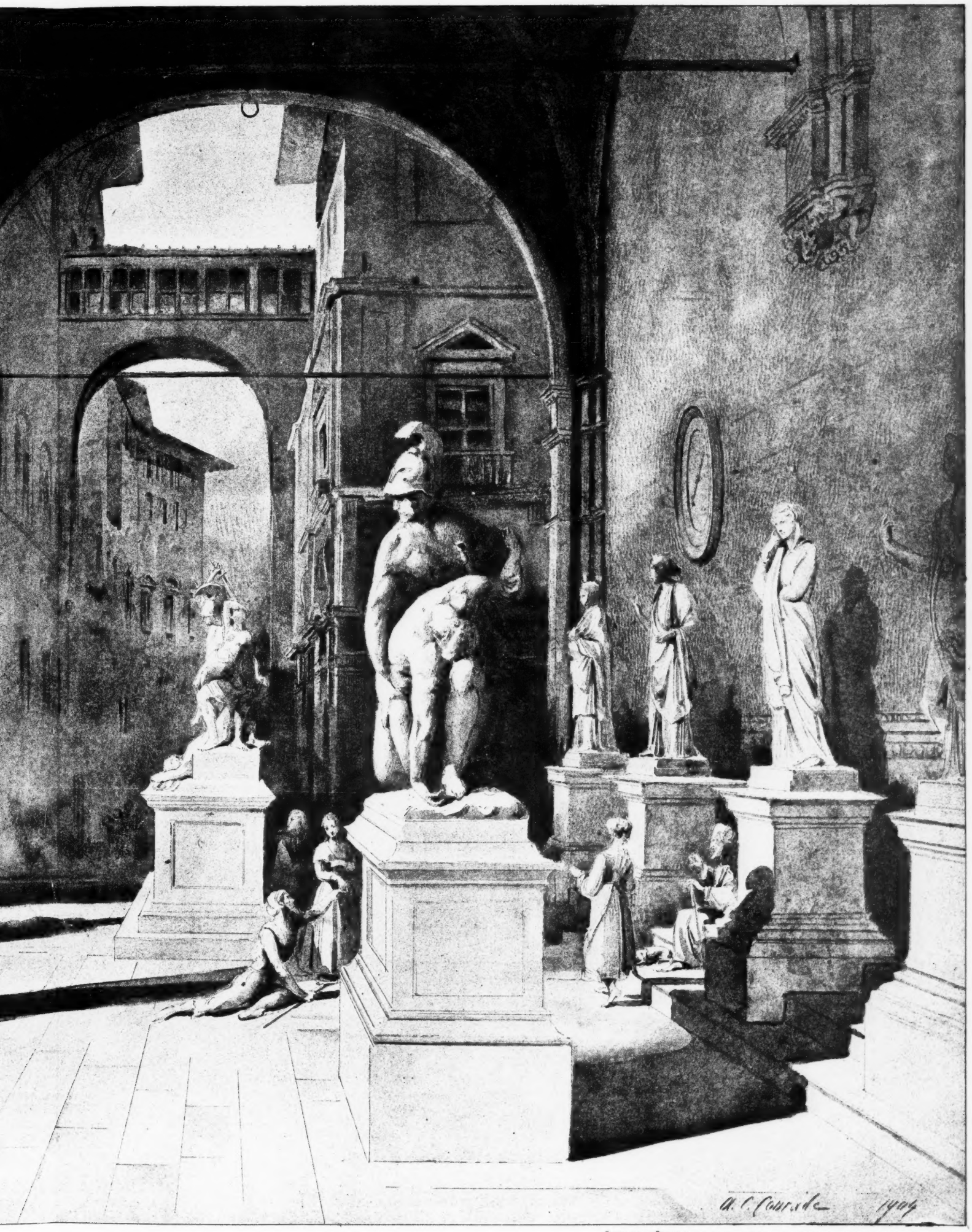


LOGGIA DE' LANZI, FLORENCE: FROM THE INTERIO



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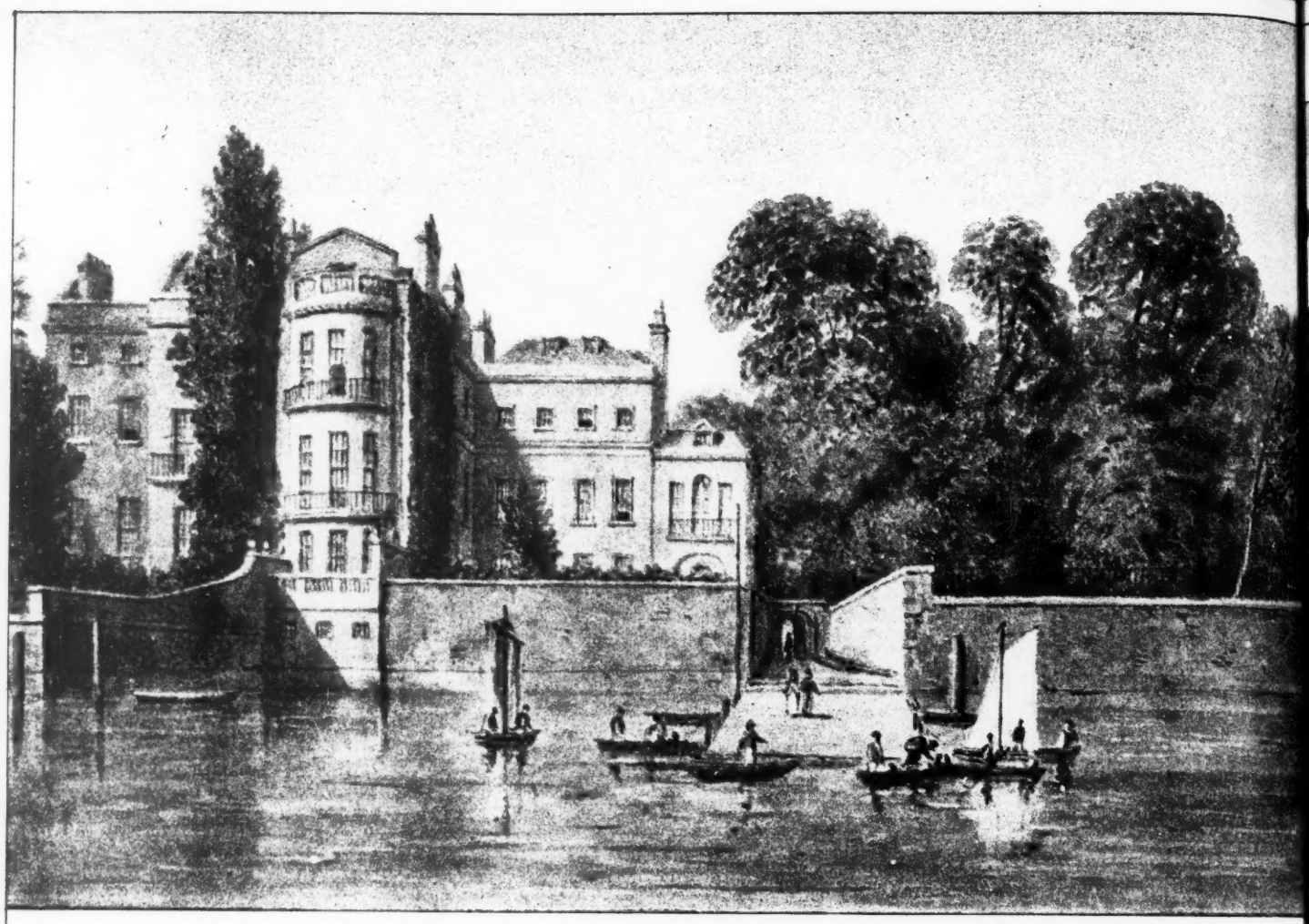
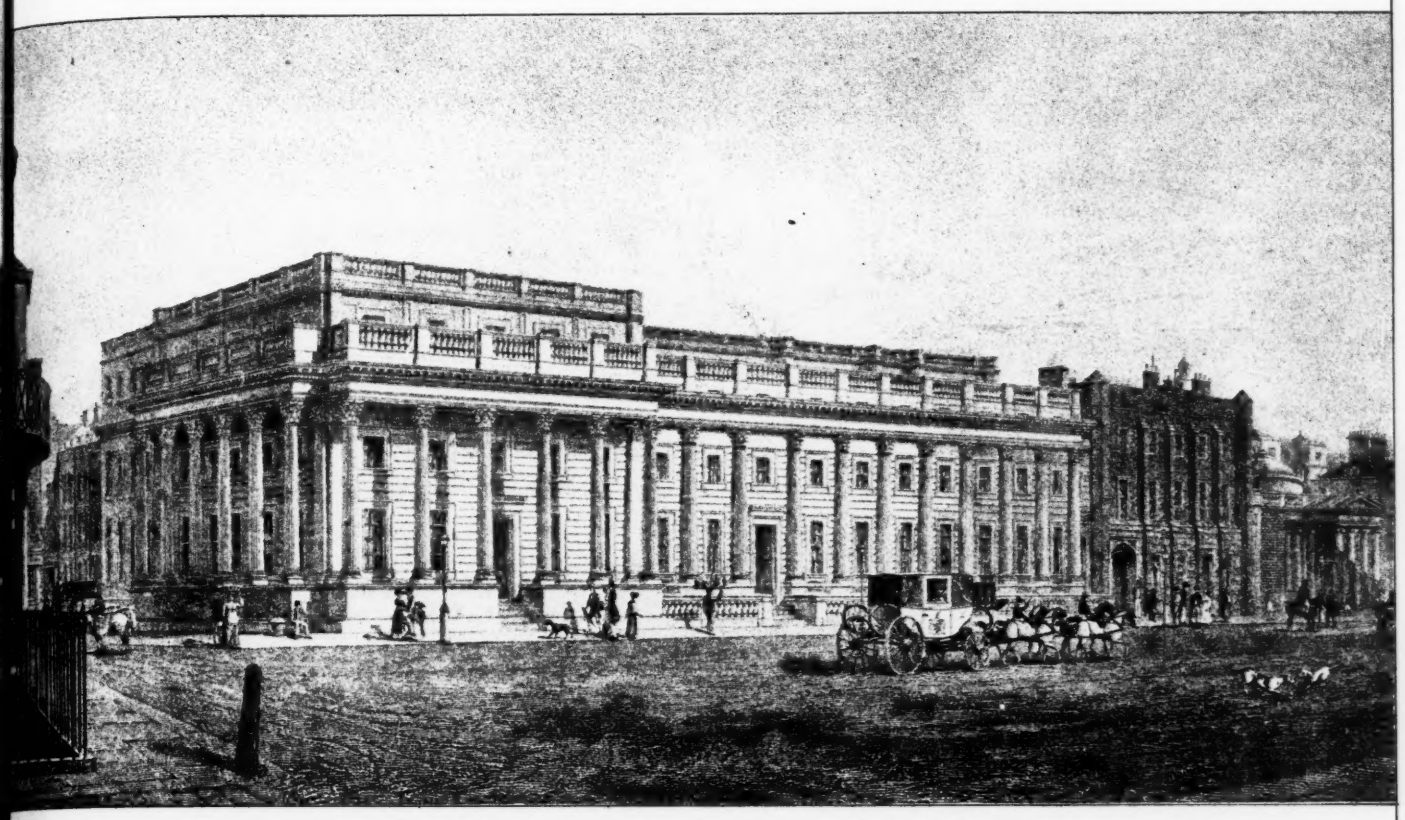
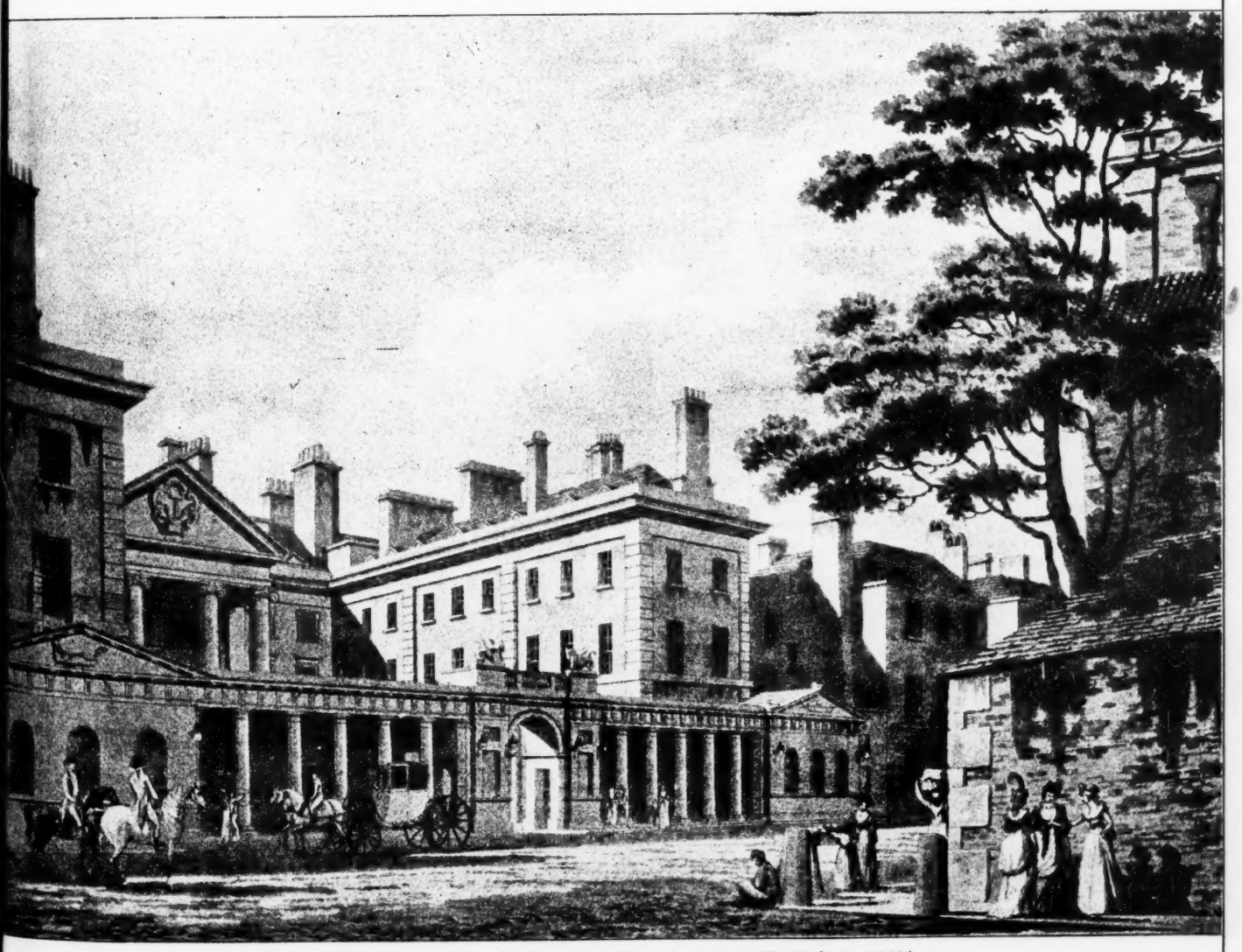


Whitehall Stairs *(Buckler : 1831)*.

Scotland Yard with part of the Banqueting House *(Sandby : 1766)*.



Treasury Buildings, Whitehall, before Barry's alteration *(Higham: 1825)*.



The Admiralty: shewing the Screen before alteration *(T. Malton: 1795)*.

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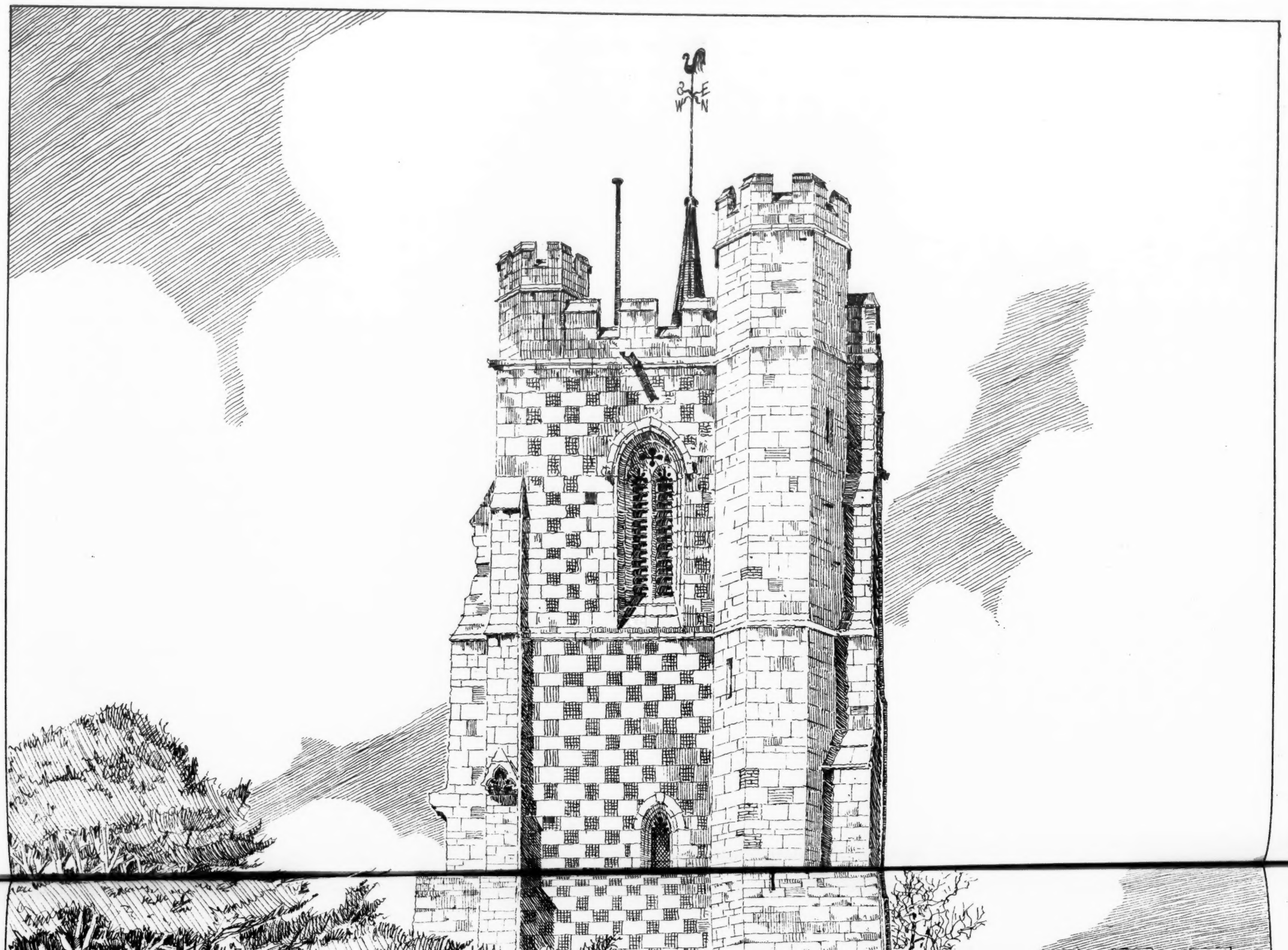
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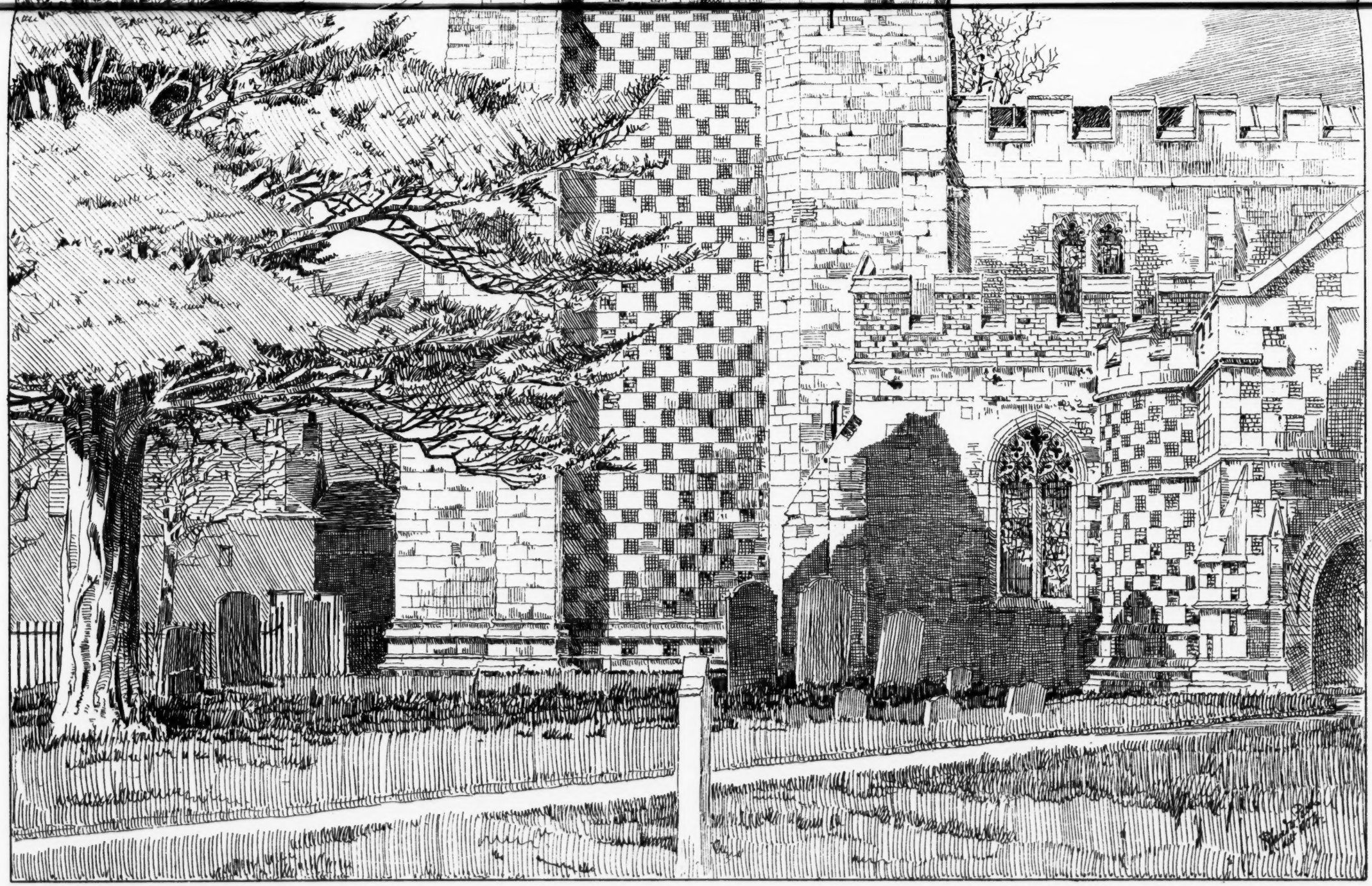

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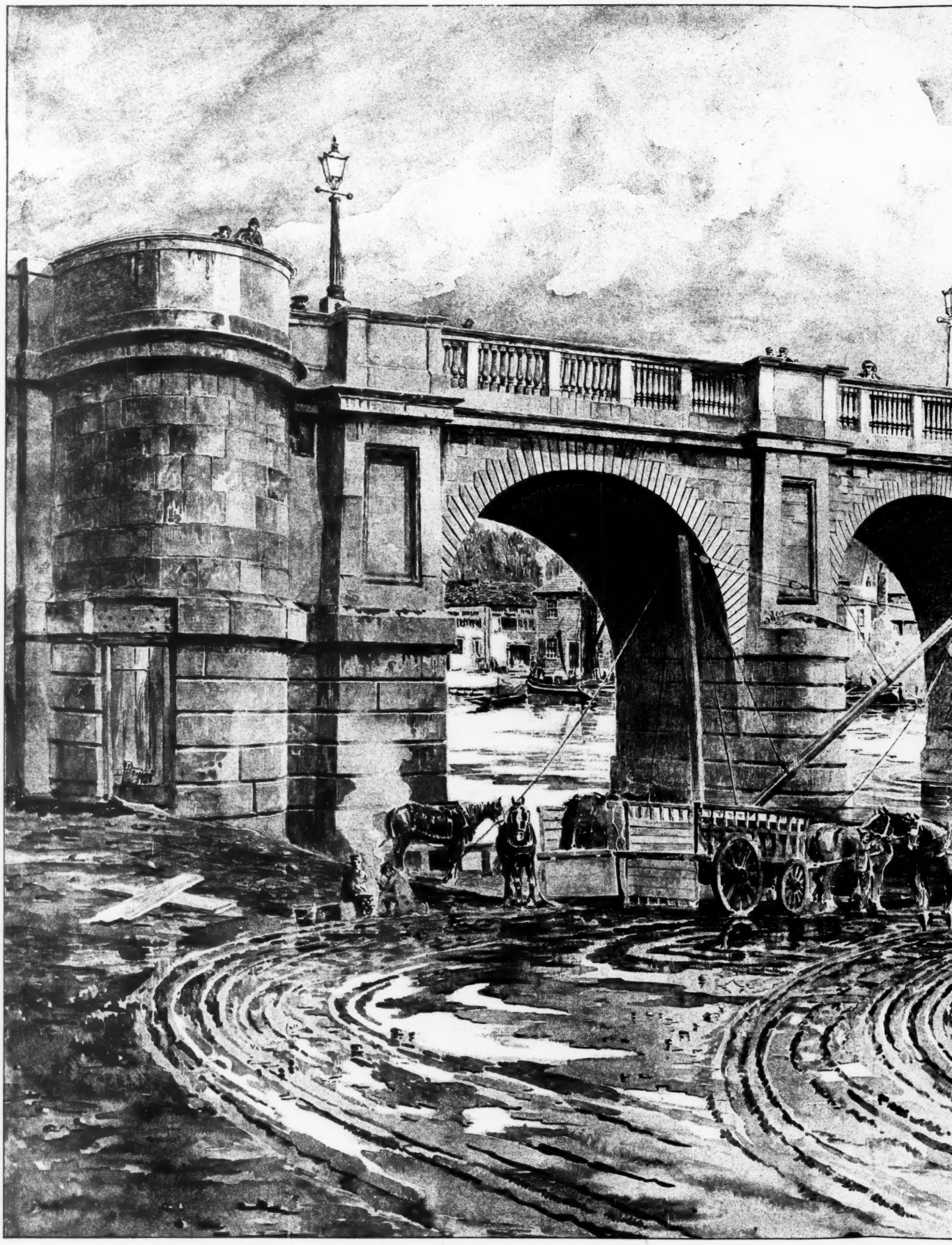
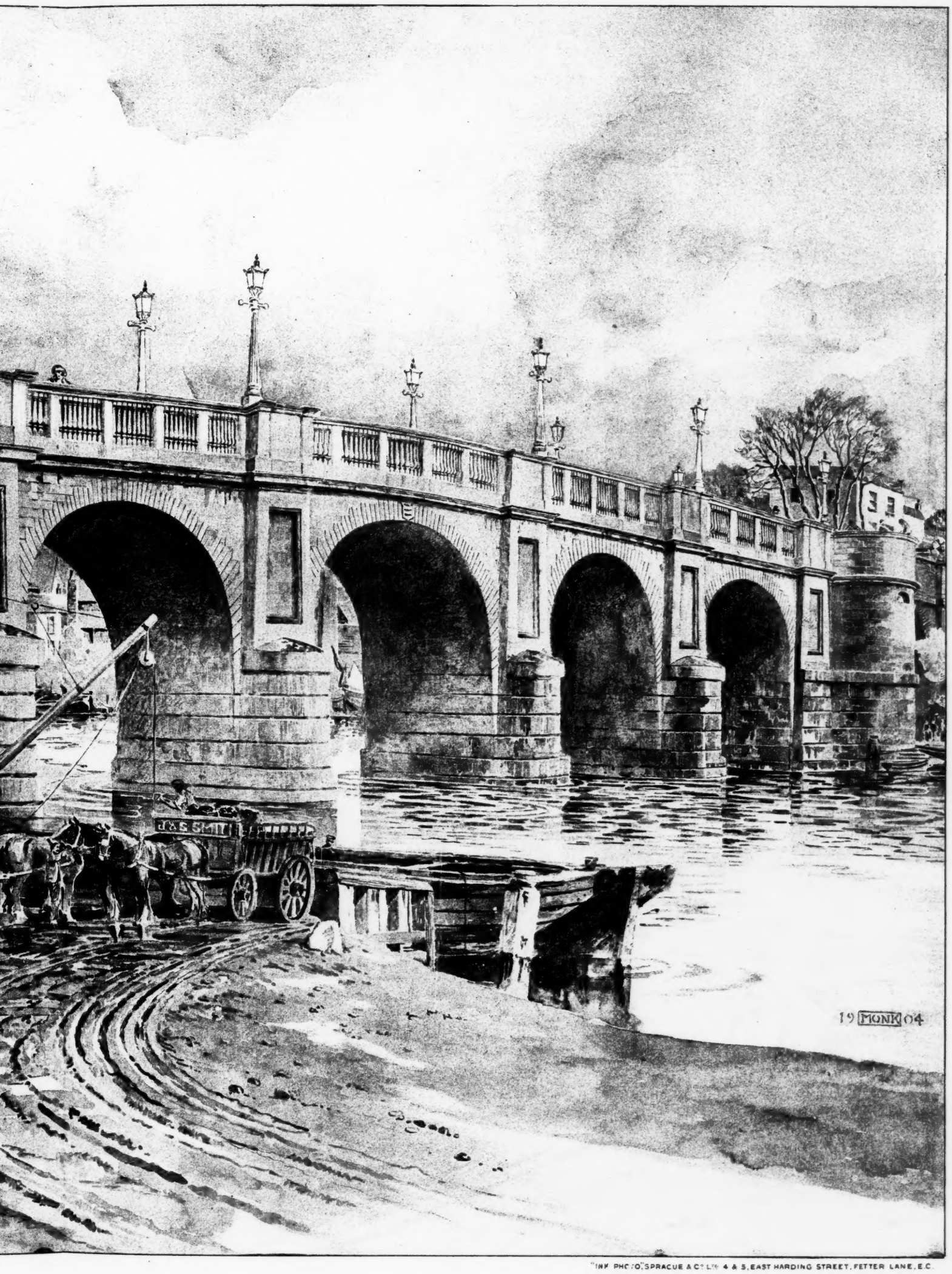
LUTON CHURCH, BEDFORDSHIRE: THE TOWER FROM THE SOUTH.

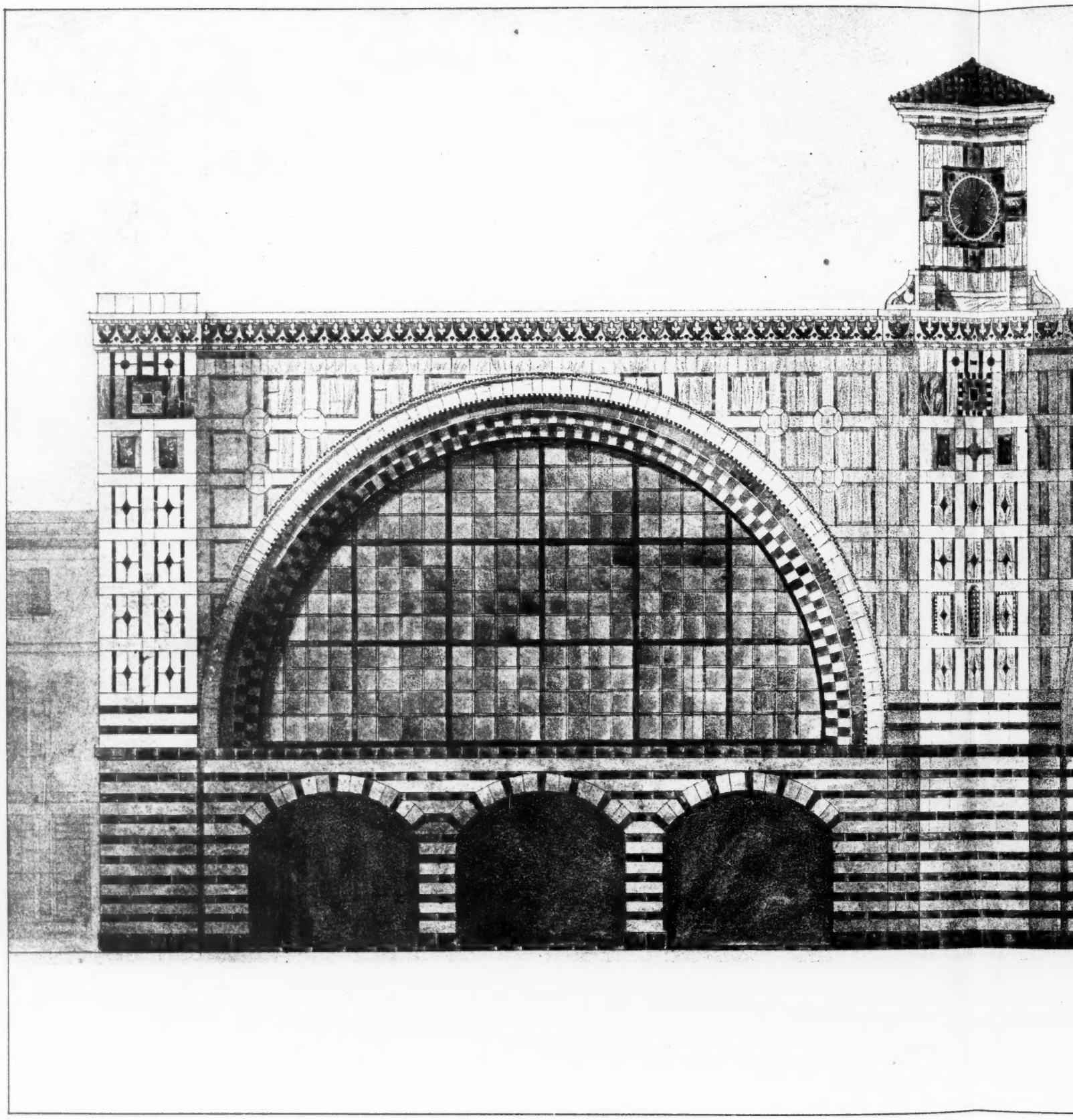


KINGSTON BRIDGE.—From a Drawing b



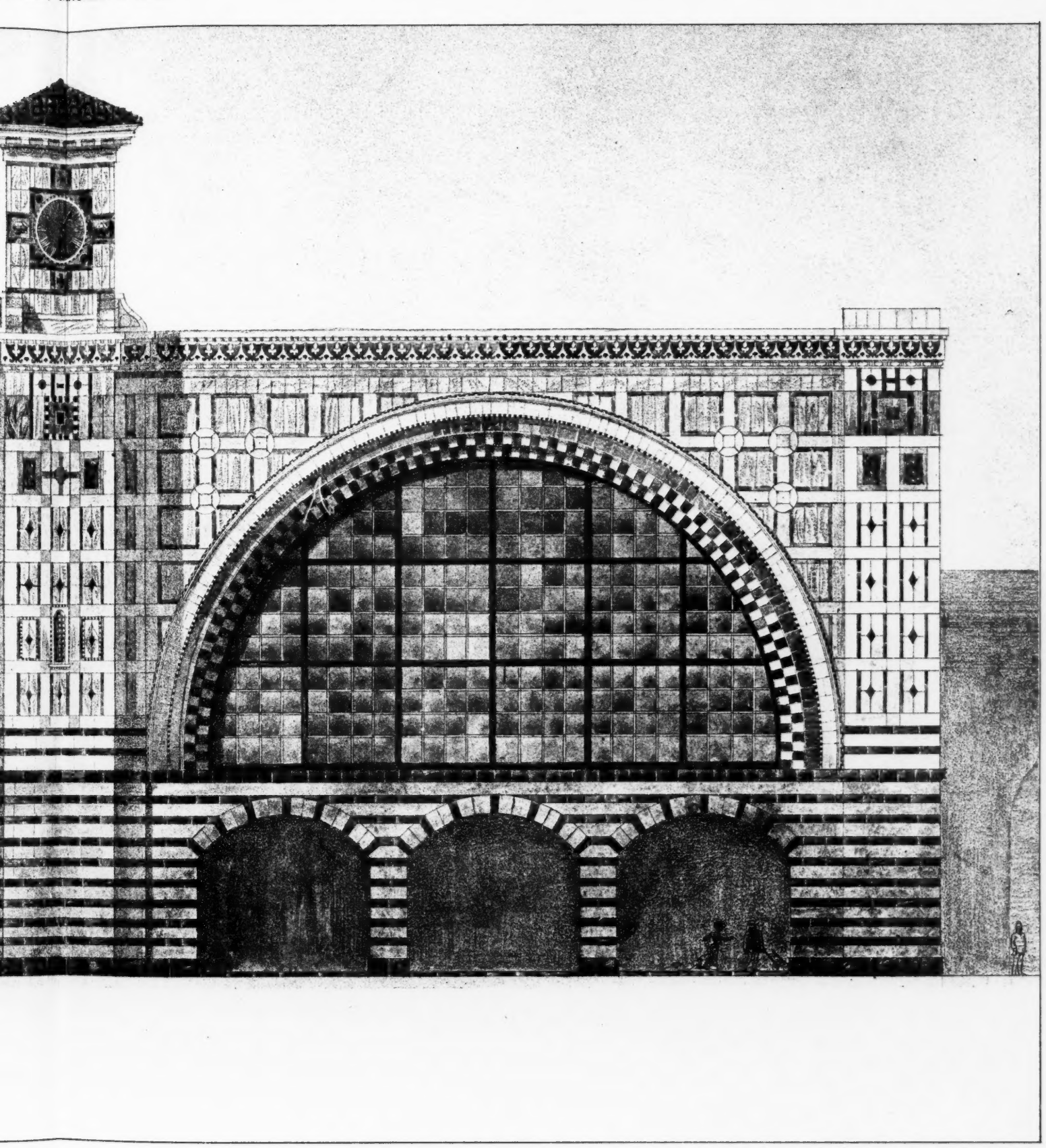
"INK PHOTO" SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

E.—From a Drawing by Mr. W. Monk



SCHEME FOR THE TREATMENT OF KING'S CROSS STATION FAÇAD

By Mr. A. C. Dickie, A.R.I.B.A



"HELIX-PHOTO" SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

OSS STATION FAÇADE AS A DECORATIVE DESIGN IN MARBLE.

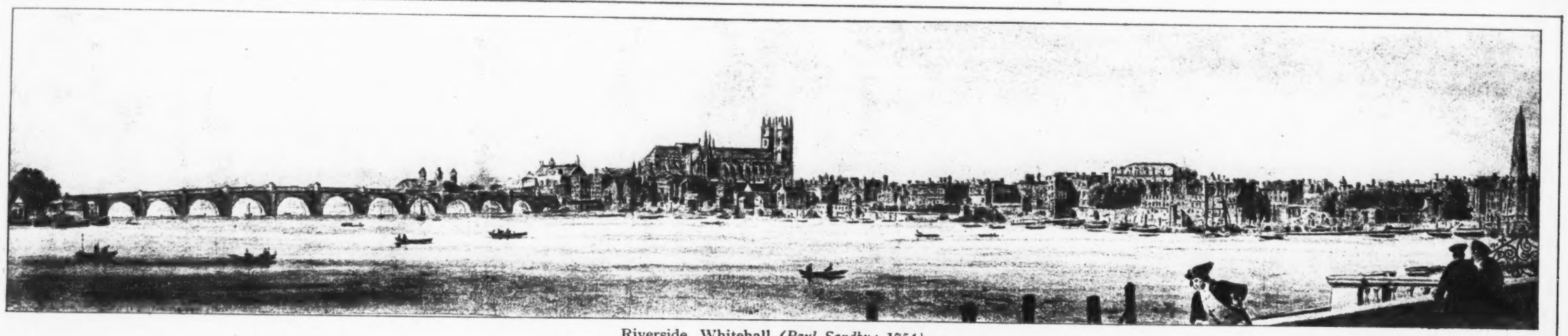
. A. C. DICKIE, A.R.I.B.A.

CARTOON OF SINGLE FIGURE FROM "PEACE."—

Royal Academy Prize Design, 1904.

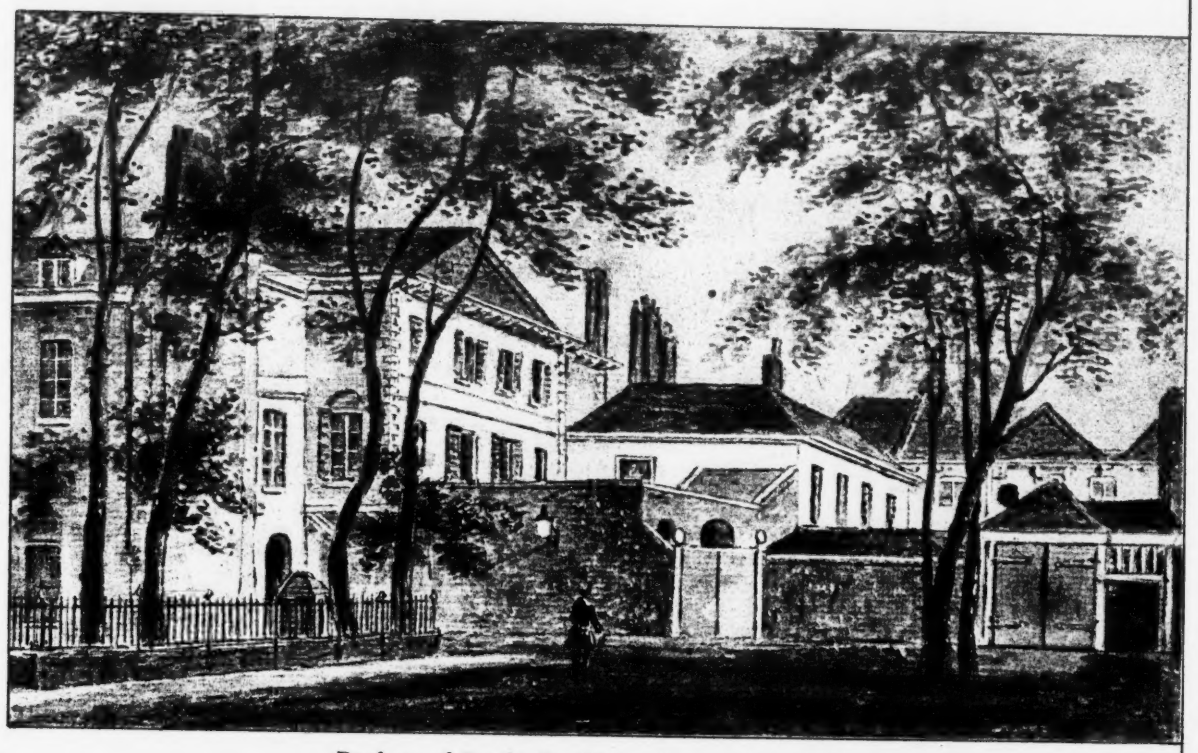
INK-PHOTO. SPRAGUE & Co. LTD. 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.

E FROM "PEACE."—By Mr. G. Howard Short.

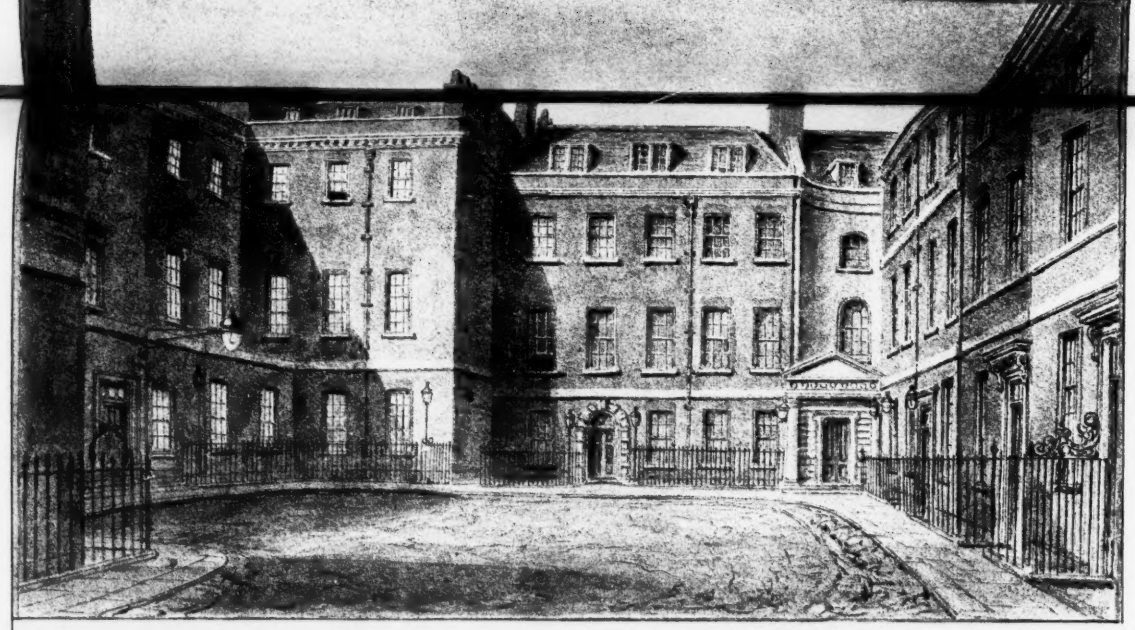


Riverside, Whitehall *(Paul Sandby: 1754)*.

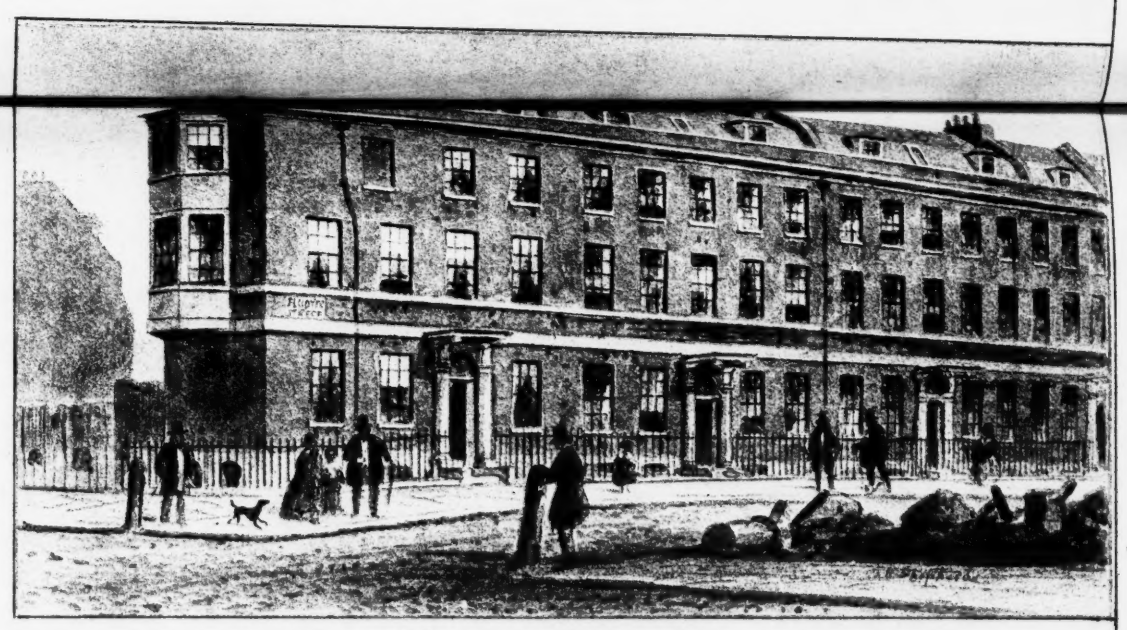
Whitehall Yard *(Ackermann: 1811)*.



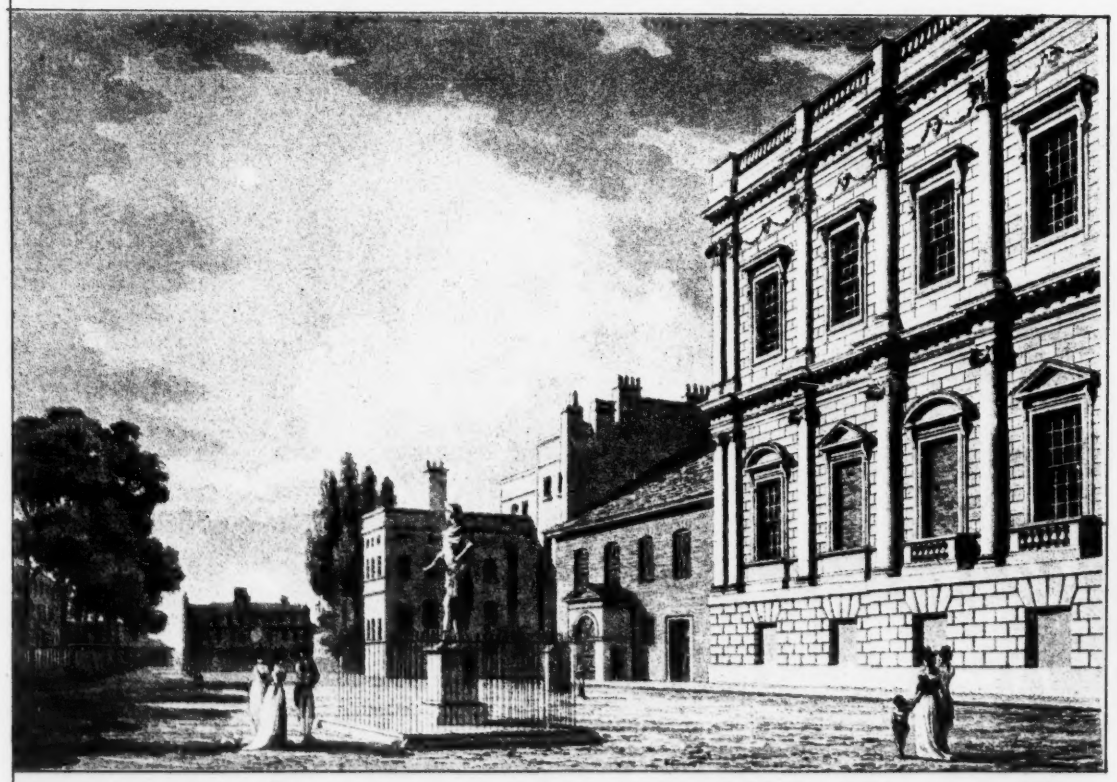
Duchess of Portland's House *(J. Bromley: 1796)*.



Old Downing Street *(Buckler: 1827).*



Fludyer Street *(Shepherd; 1859.)*



The Privy Garden and the Banqueting House *(T. Malton: 1795).*

Charing Cross and Northumberland House *(Bowles, after Canaletti: 1753).*

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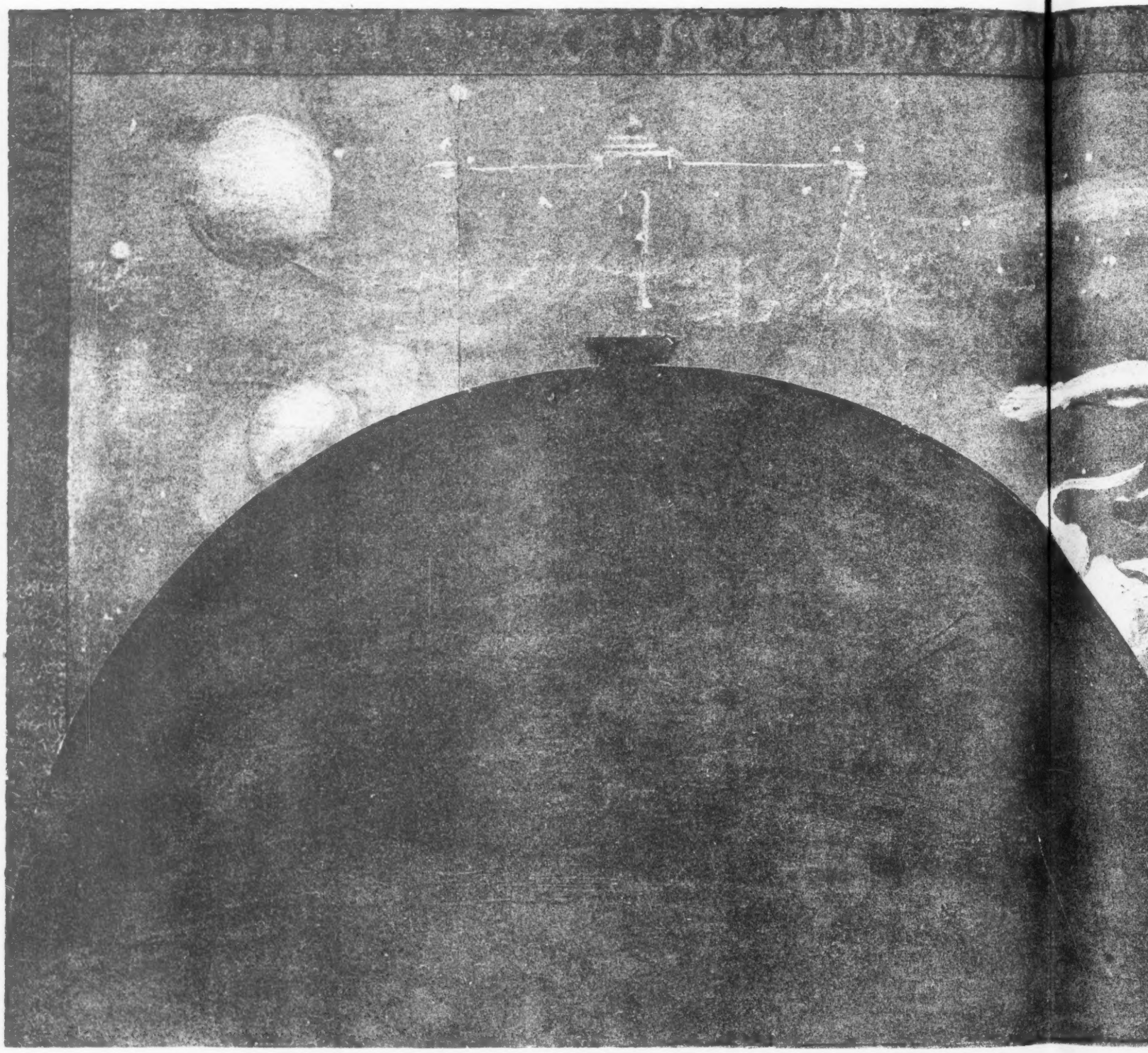
OLD LONDON SITES IN THE WHITEHALL AND CHARING CROSS NEIGHBOURHOOD.—I.



"PEACE": DESIGN FOR THE DECORATION OF A PUBLIC

Royal Academy Prize Design, 1904.

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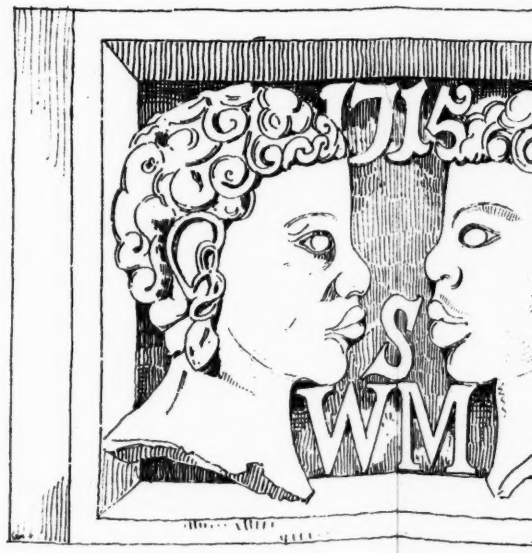
ATION OF A PUBLIC ROOM.—By Mr. G. Howard Short.

Panel with crest of the Stanleys from Crooked Lane.

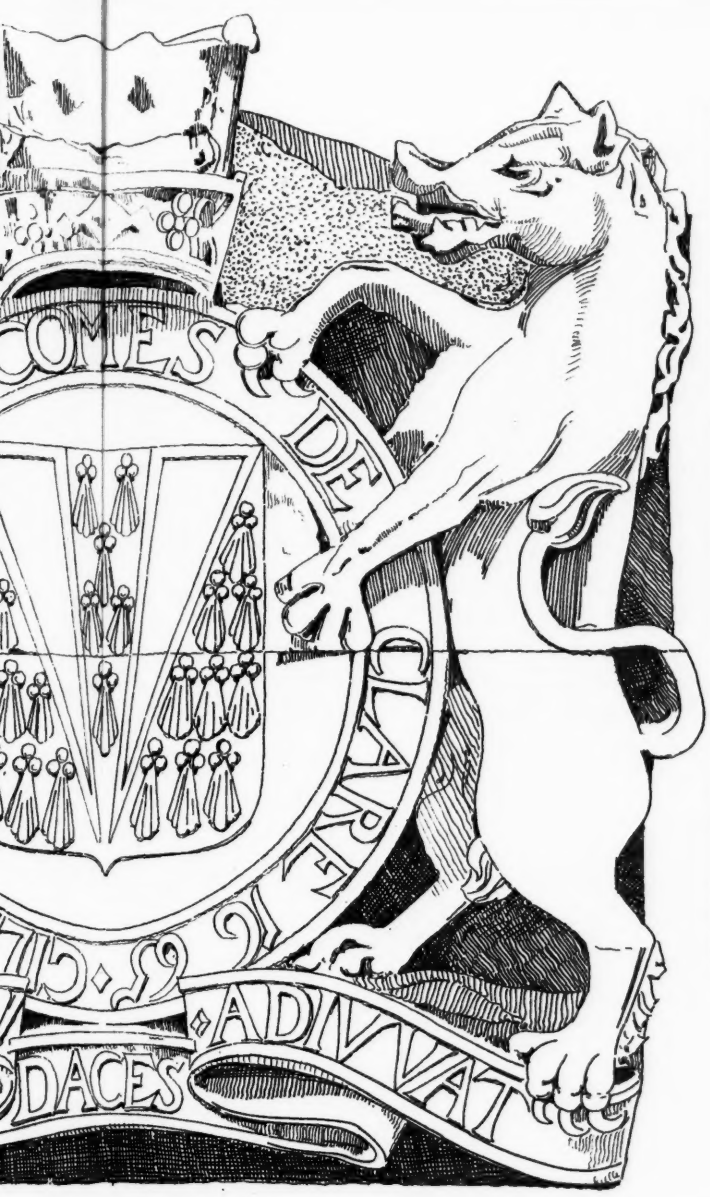
Sculptured stone with the arms Holles, Earl of Clare, from Holl Clare Market.

Heraldic Tablet formerly on the front of the Old Bell Inn, Holborn.

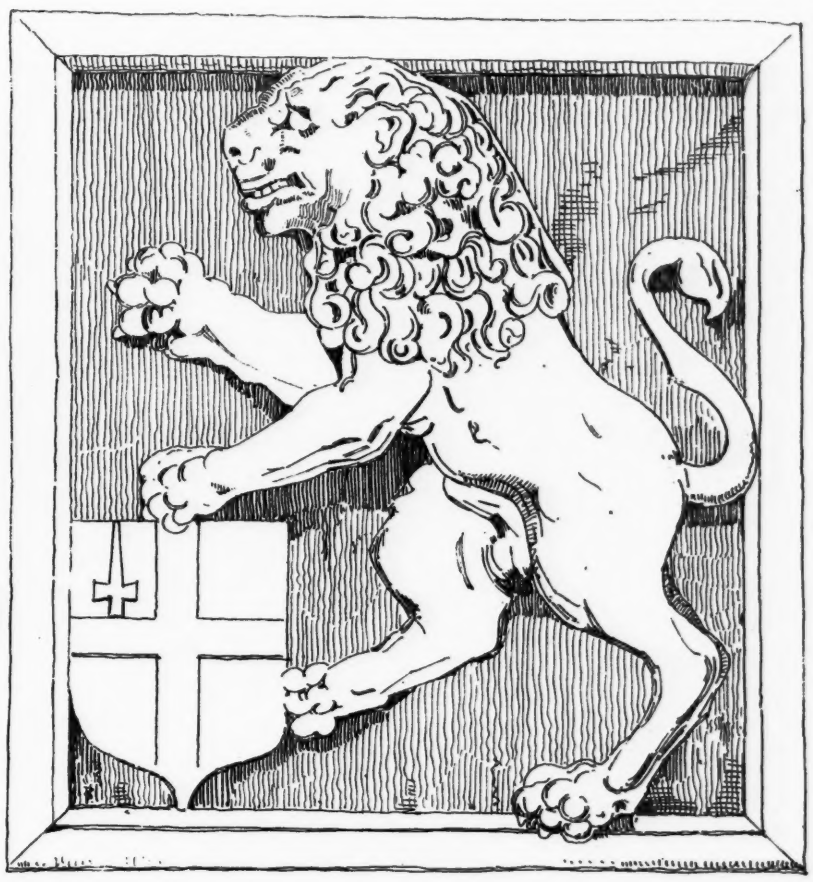
Scale of Inches



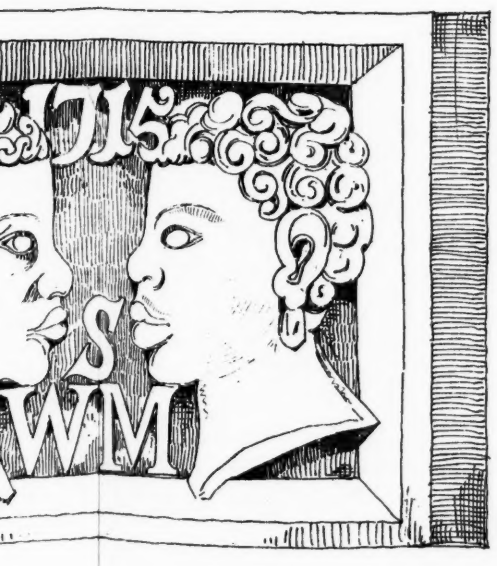
A Panel from Clare Mar



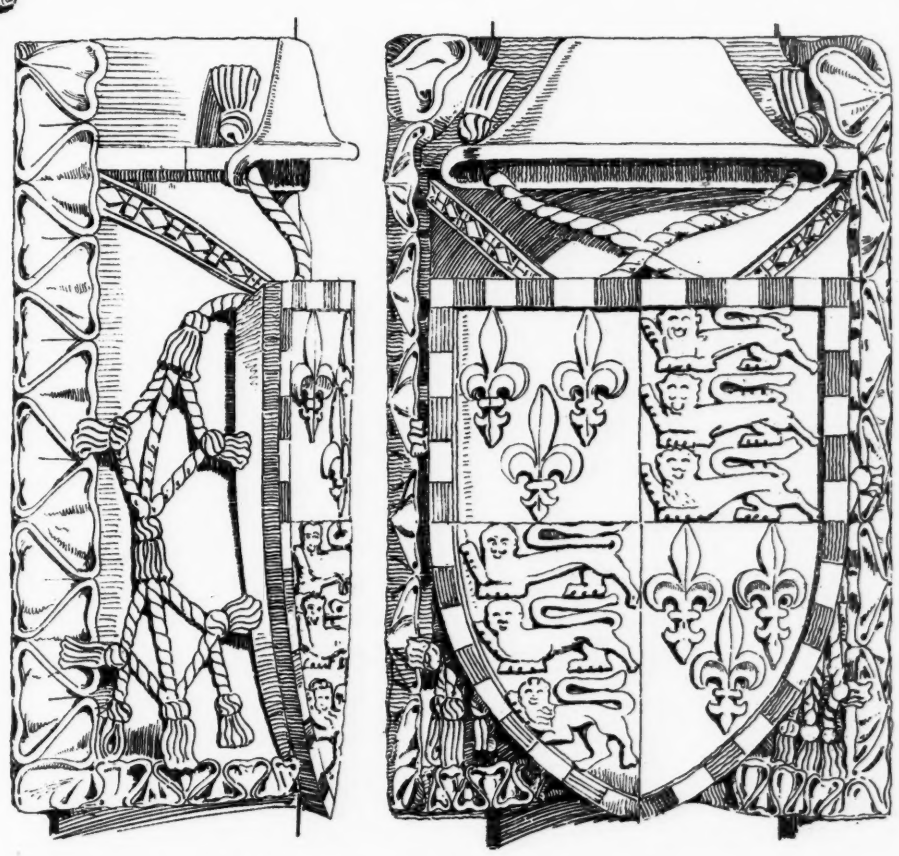
tone with the arms of Gilbert
l of Clare, from Holles Street,
Clare Market.



Panel with arms of the City of London
from № 342, Strand.



el from Clare Market.



Arms of Cardinal Beaufort,
in St Saviour's Ch., Southwark.

Roland McPaul
Hons. et Delt. 1904.

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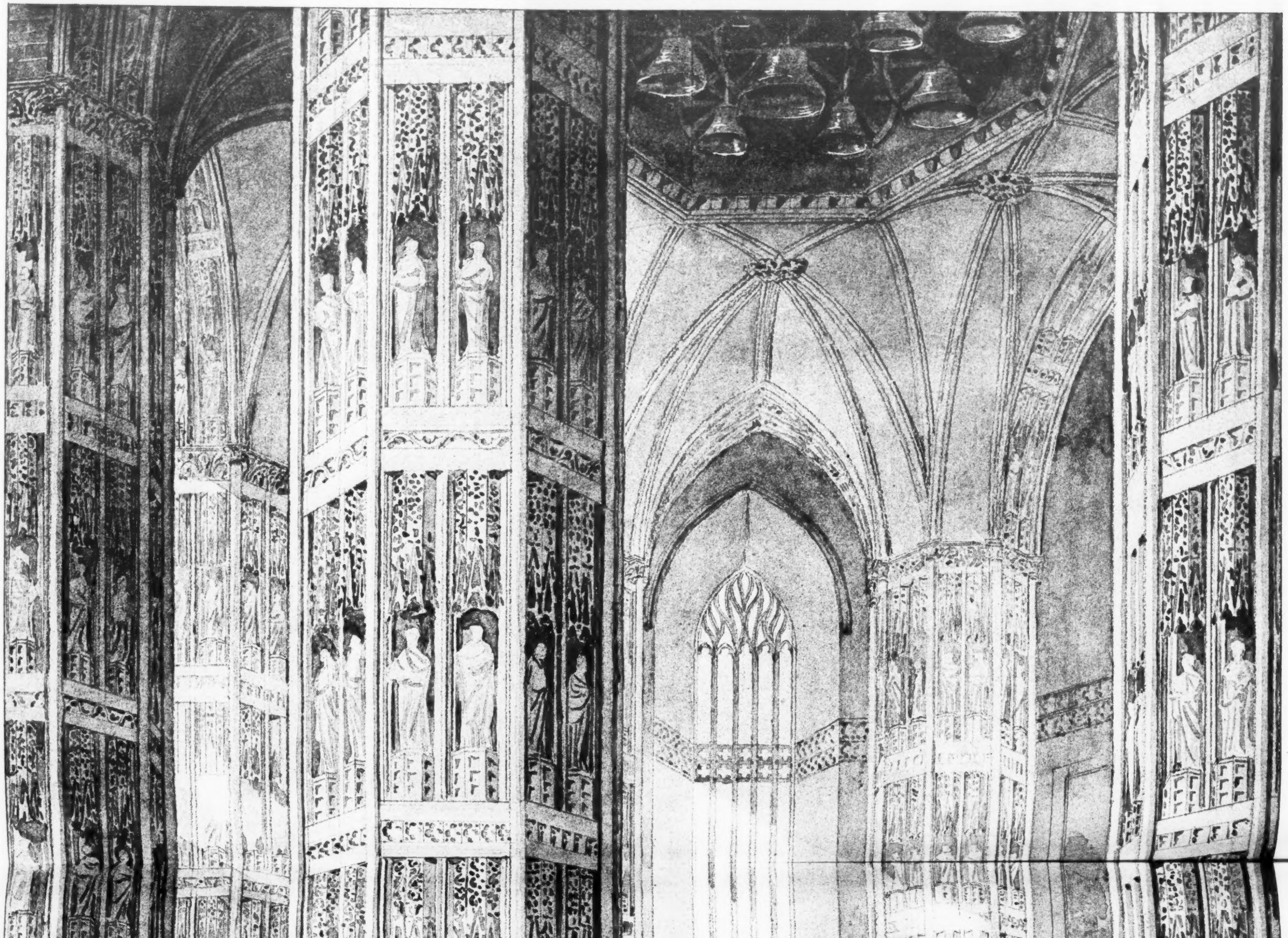
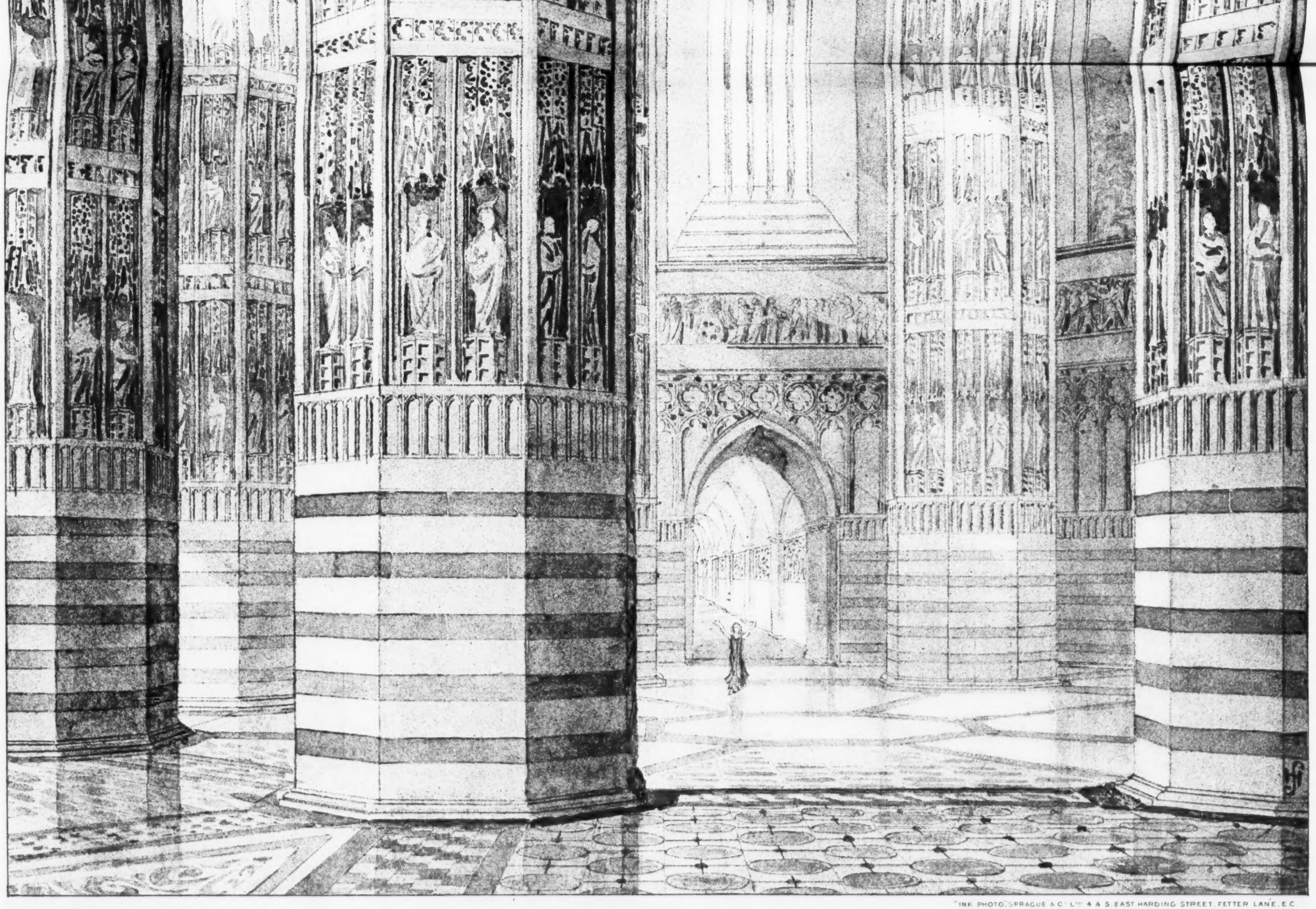
"L'OFFRANDE À L'AUTEL DE L'AMOUR."—M. Hector Lemaire, Sculptor.
EXHIBITED AT THE PARIS SALON.





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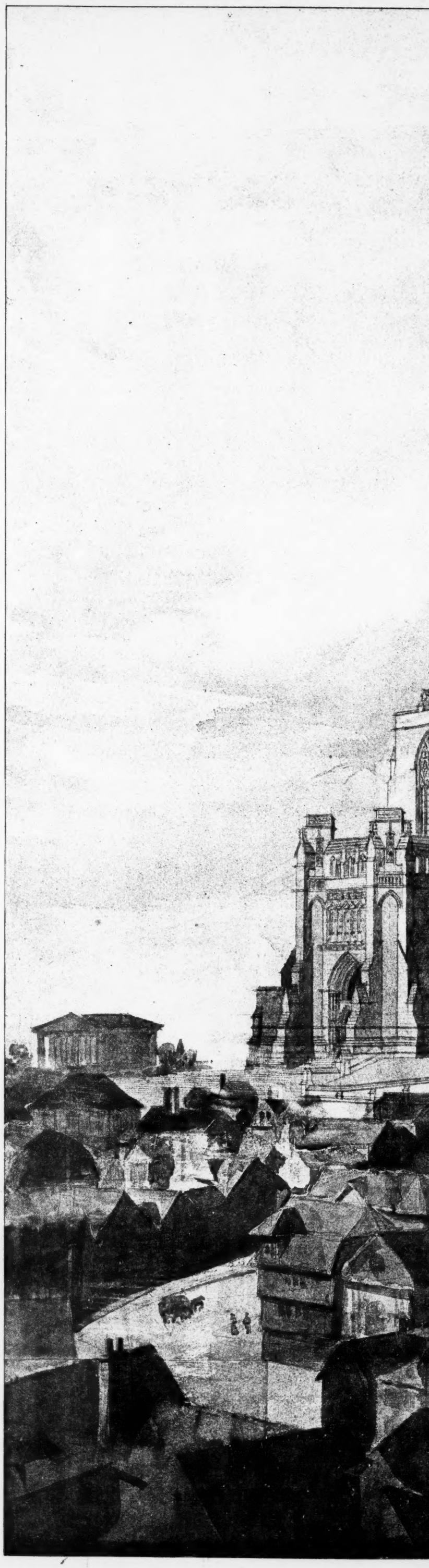
A HALL IN TENNYSON'S "PALACE OF ART."—By the Editor.

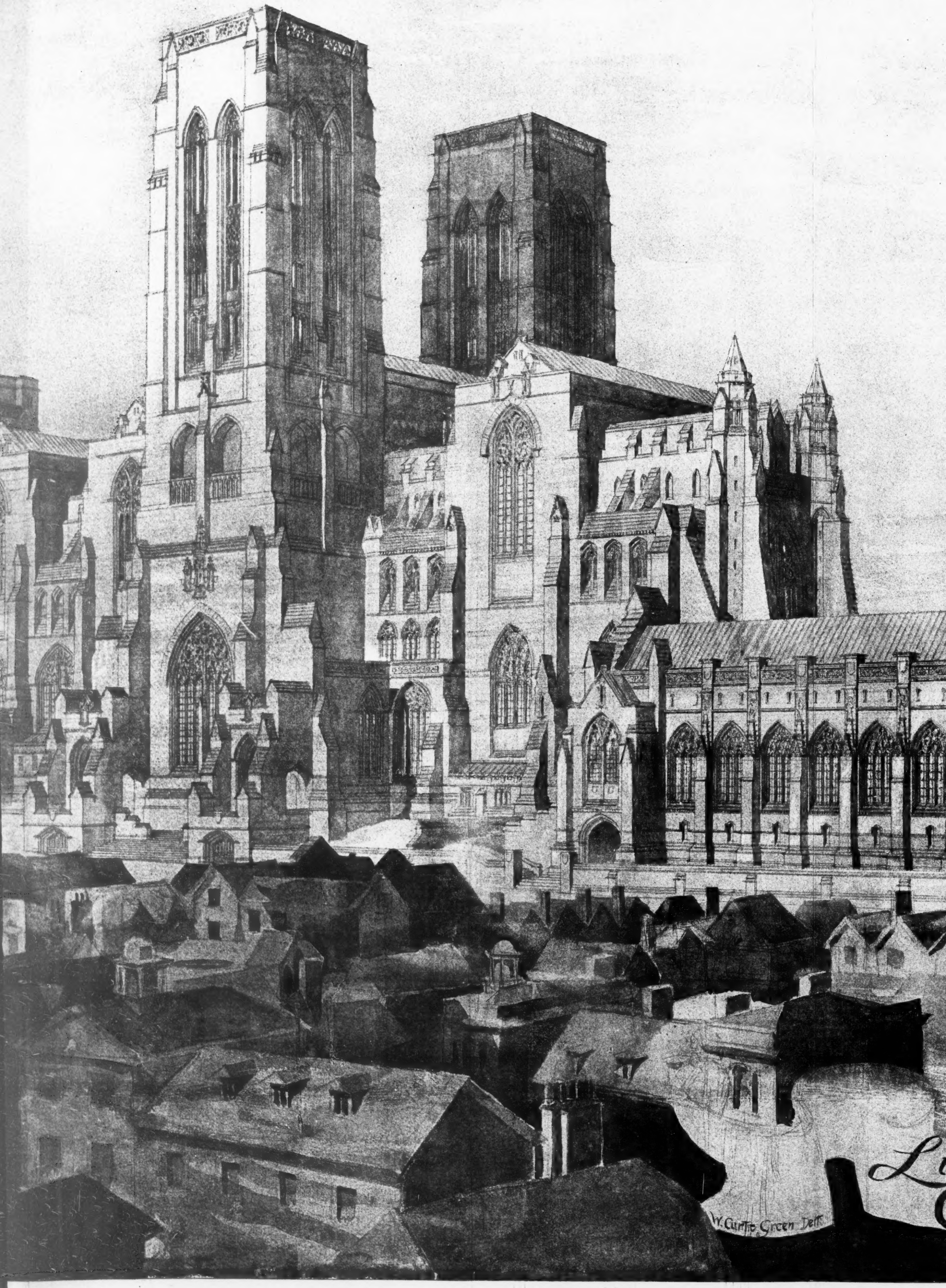
"Full of long-sounding corridors it was,
* * * * *
Through which the live-long day my soul did pass,
Well-pleased, from room to room."

"Then in the towers I placed great bells that swung,
Mov'd of themselves, with silver sound."



LIVERPOOL CATHEDRAL AS PROPOSED.—Designed by Mr. G

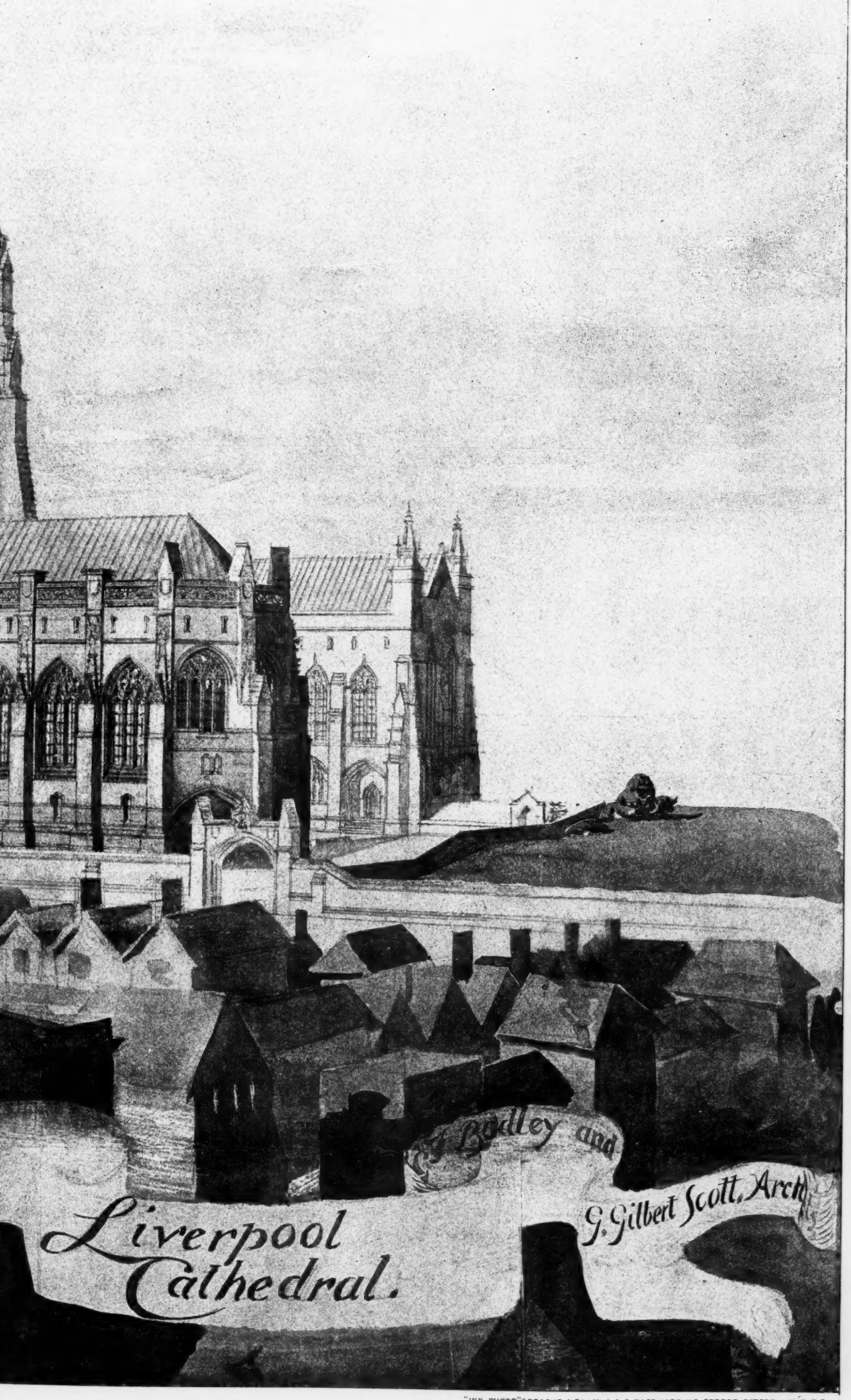
DRAWN BY Mr. W. CURTIS GREEN.



LIVERPOOL CATHEDRAL AS PROPOSED.—DESIGNED BY MR. G. GILBERT SCOTT.

DRAWN BY MR. W. CURTIS GREEN.

1



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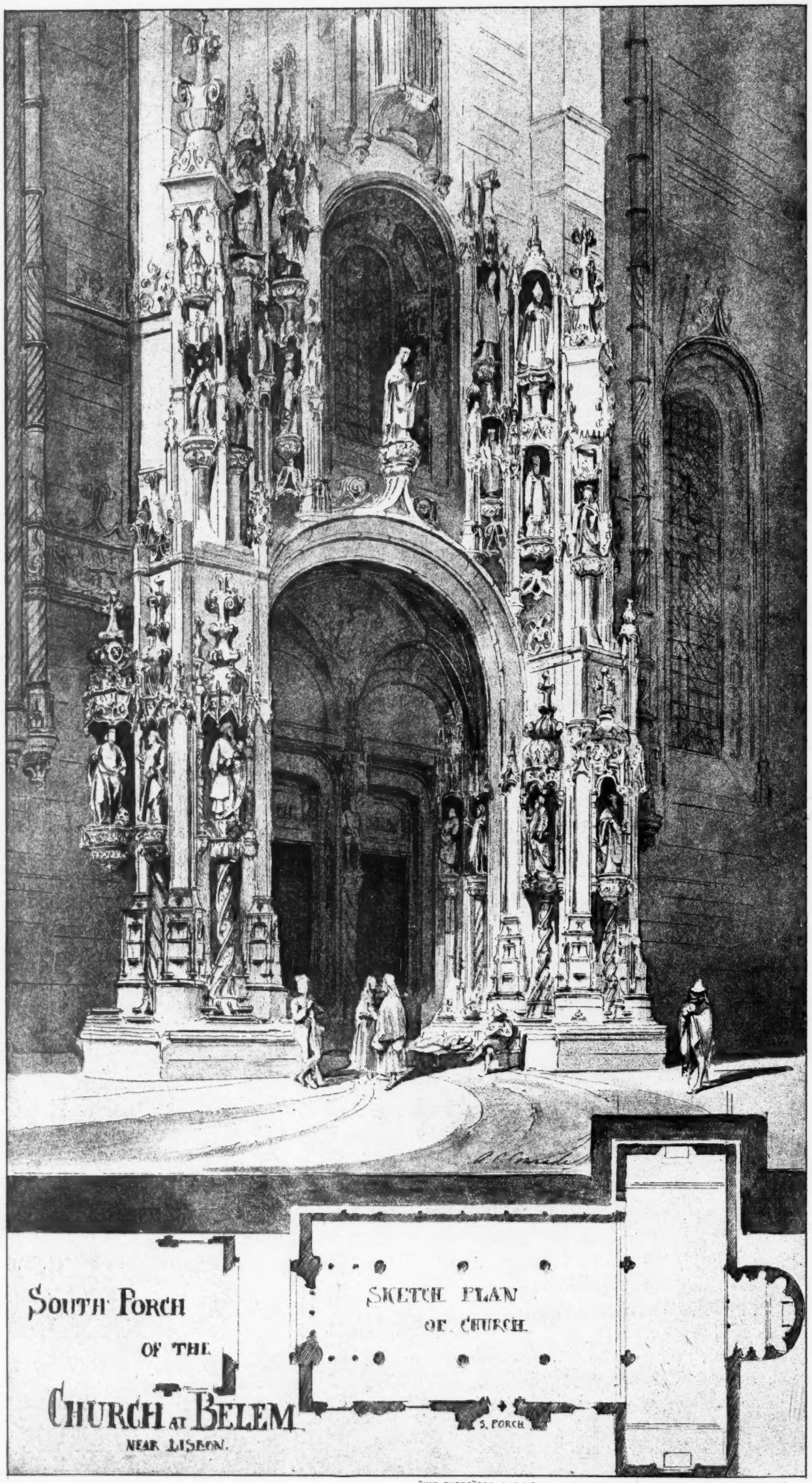
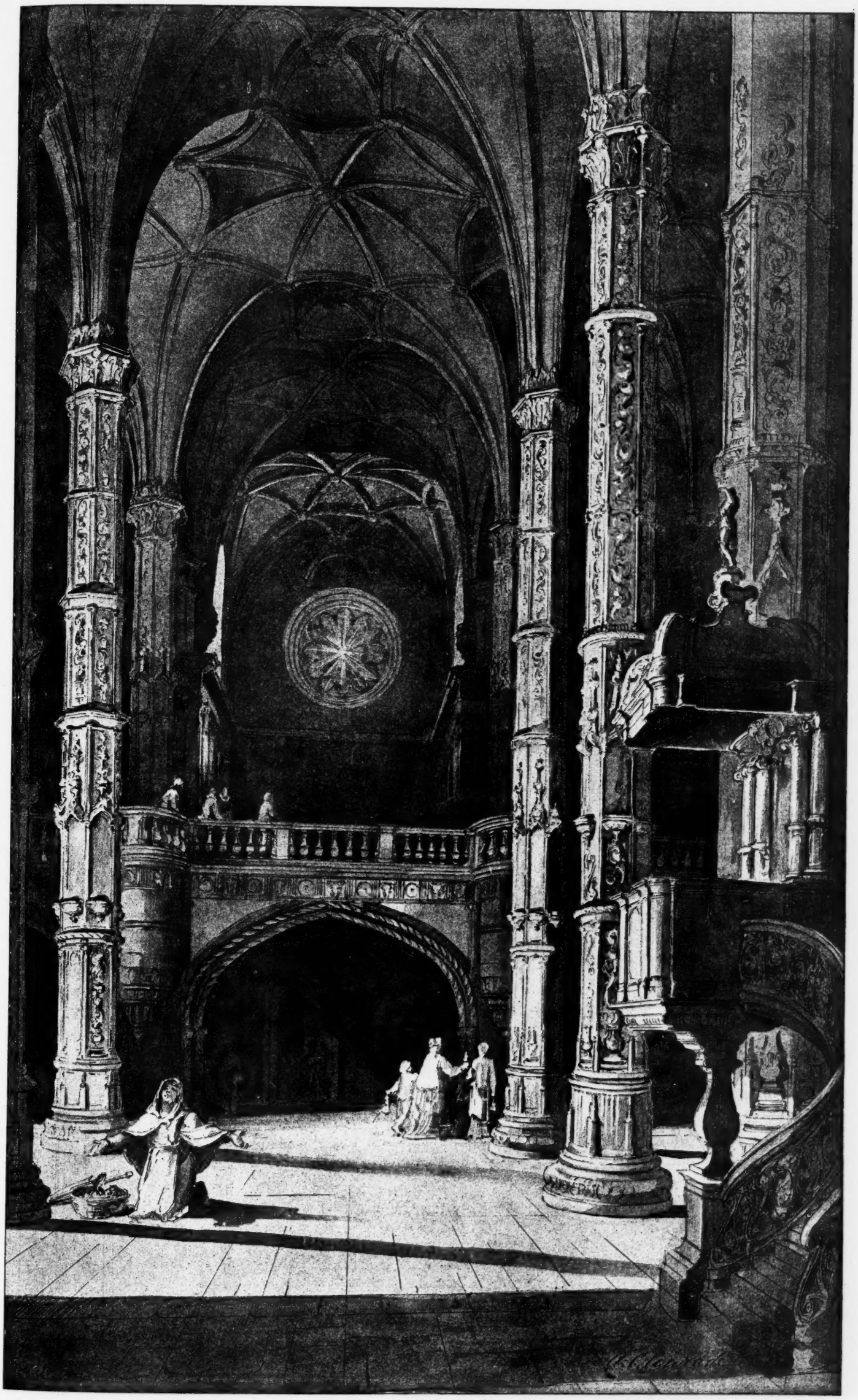


"INK-PHOTO." SPRAGUE & Co LTD 4 & 5, EAST HARDING STREET, FETTER LANE, E.C.



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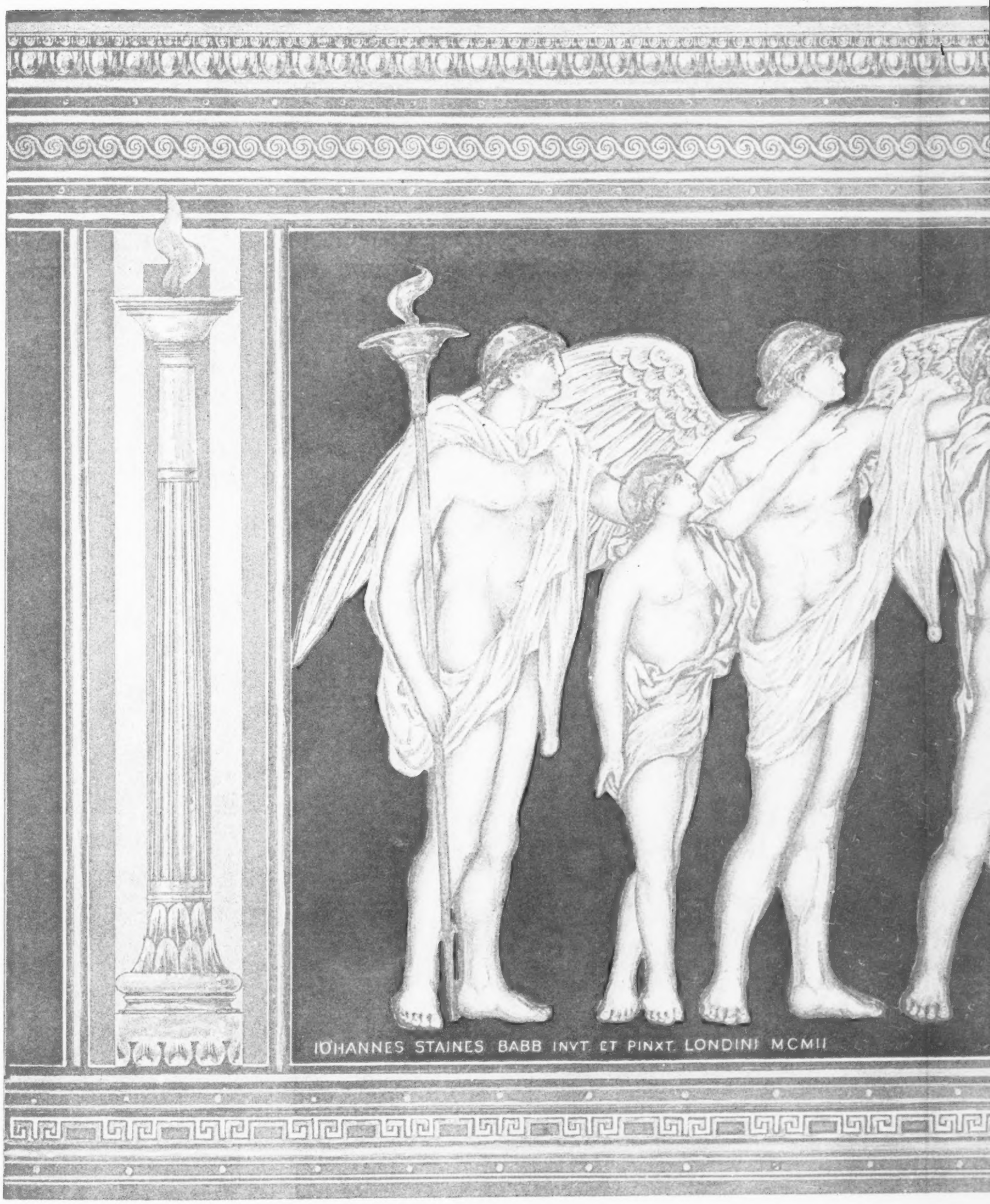
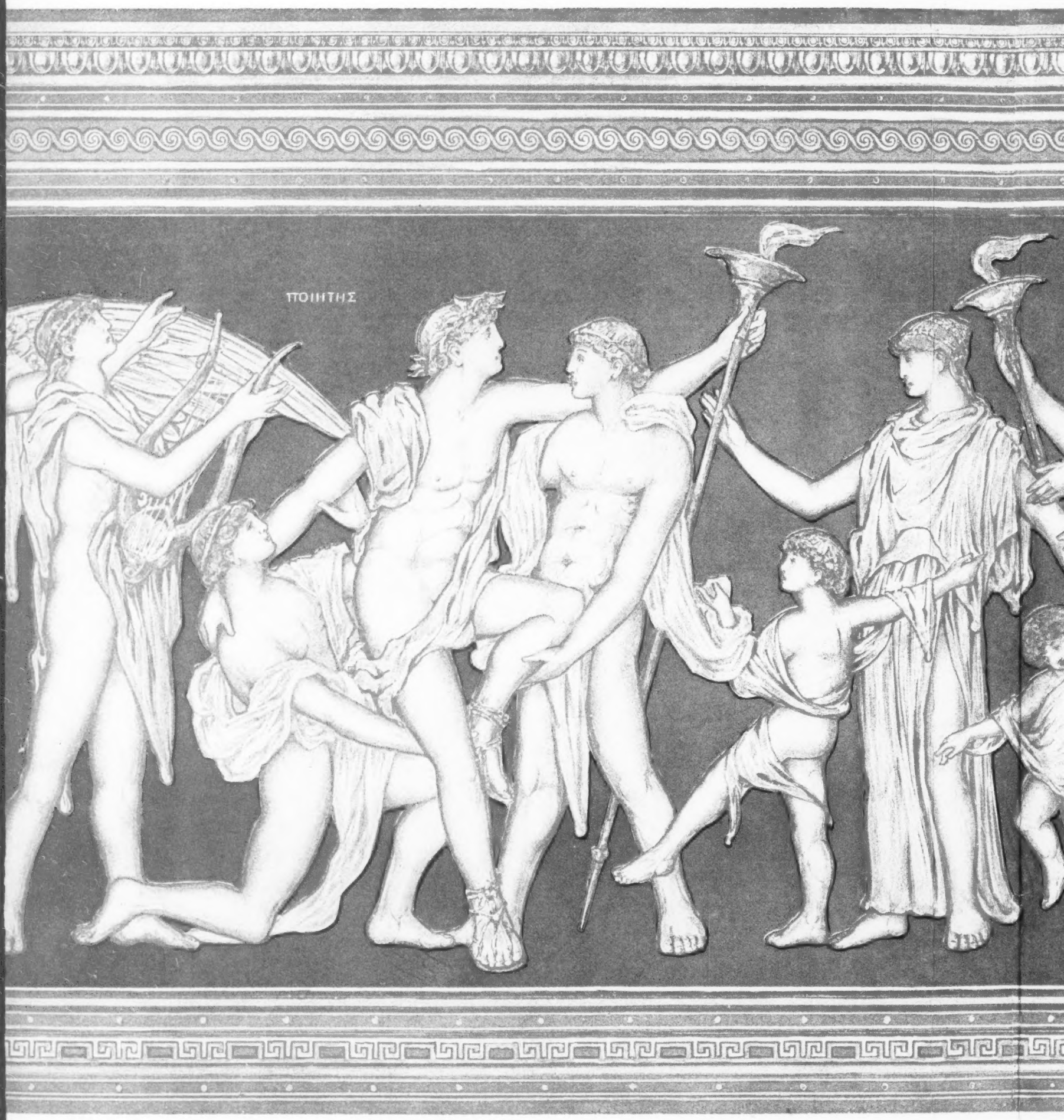
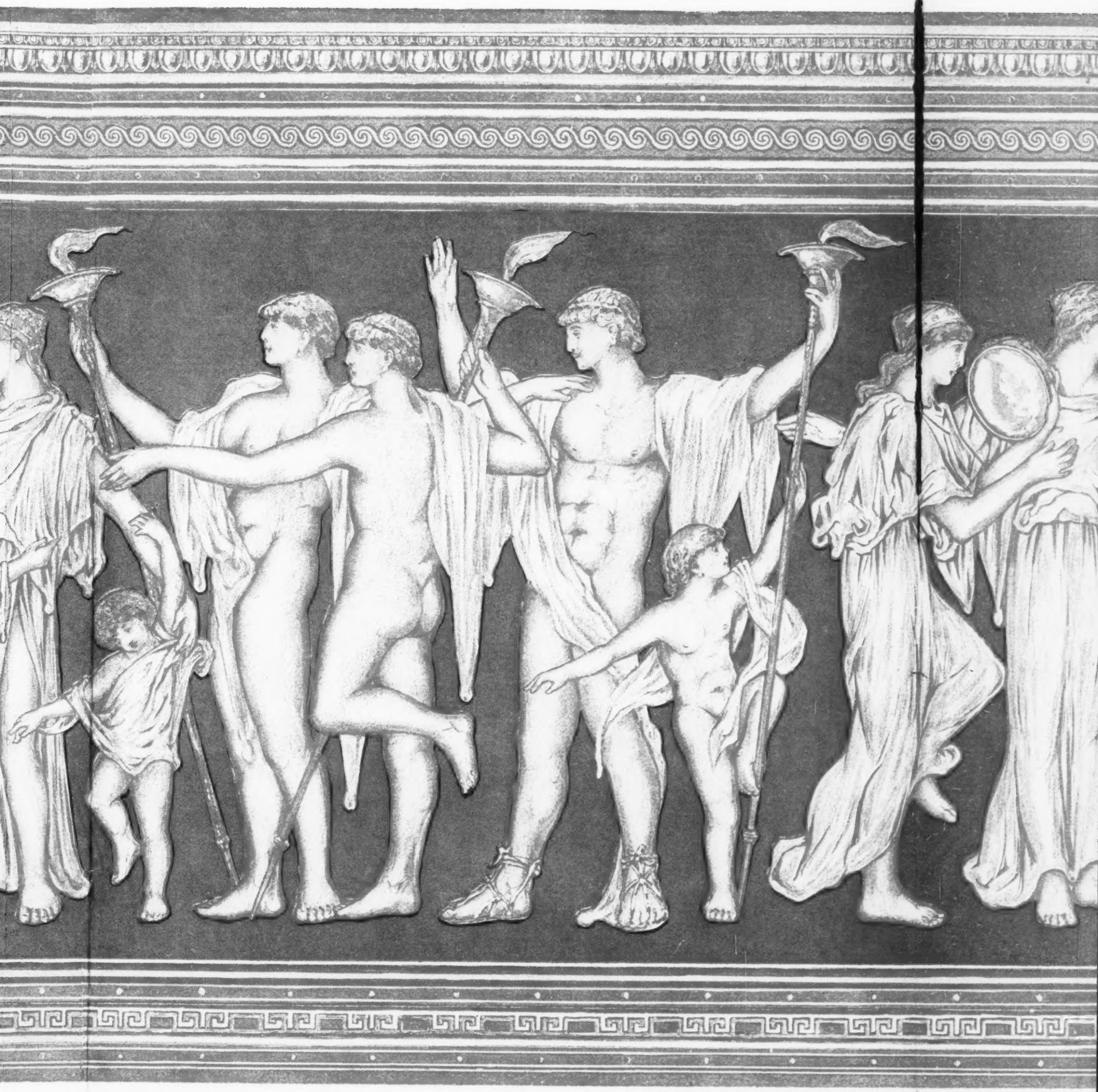
BELEM CHURCH: INTERIOR LOOKING WEST.—From a Drawing by Mr. A. C. Conrade.

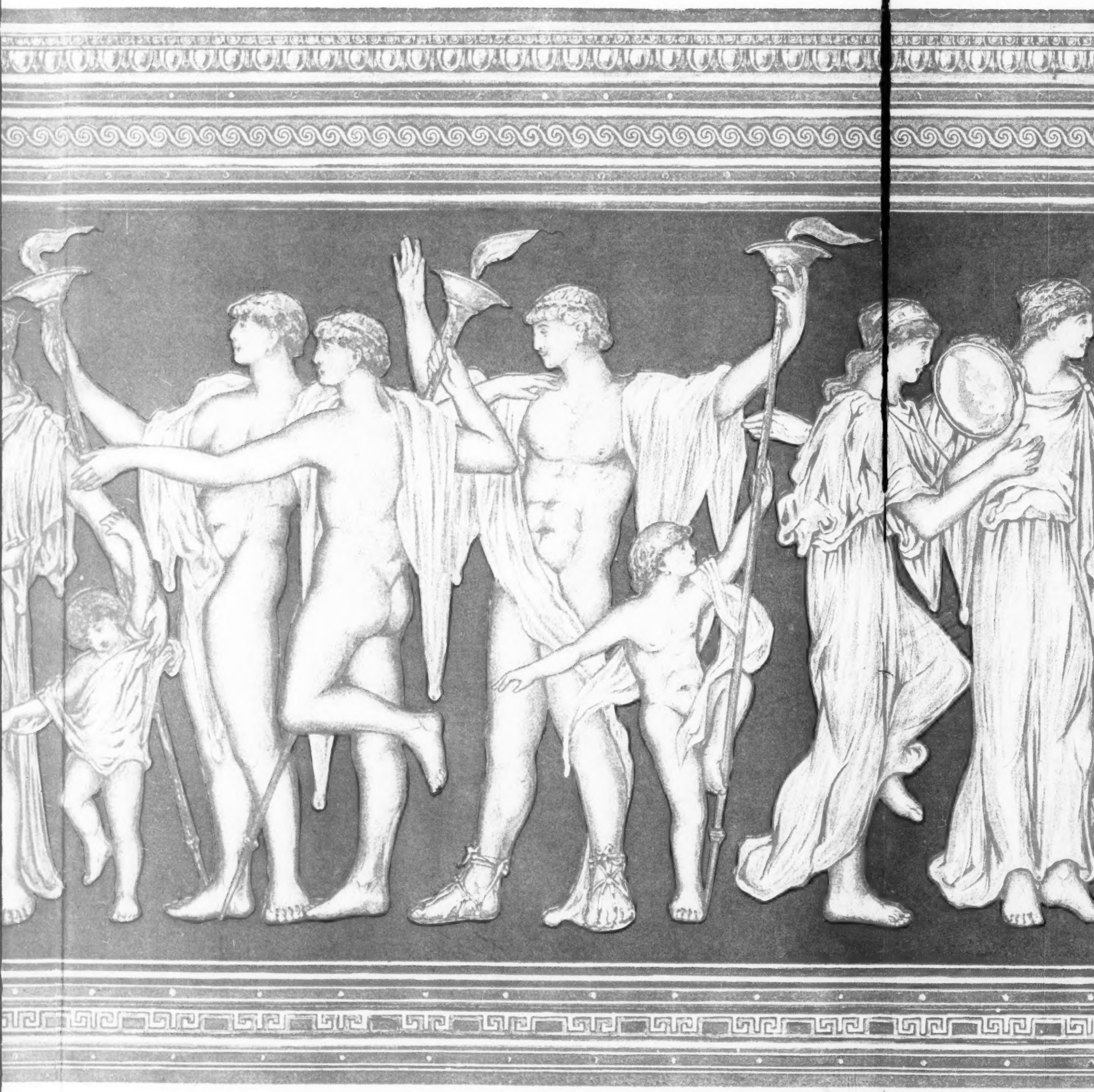

IOHANNES STAINES BABB INVT ET PINXT LONDINI MCMII



FRIEZE: "THE MAKER OF THE SC



OF THE SONG."—By Mr. J. Staines Babb.



F THE SONG."—By Mr. J. Staines Babb.

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